Grammatical and pragmatic use of referential expressions in picture-based narratives of bilingual and monolingual children in Russian and German

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Abstract

This dissertation deals with the use of referential expressions in the narrative discourse of monolingual and bilingual children in Russian and German. A total of 188 narratives, elicited with picture stories from 60 bilingual and 68 monolingual children in 3 age groups (4, 5, and 6 years of age) were examined. The main aim of the study was to find out how Russian-German bilingual children and monolingual children of the respective languages deal with the choice of referential expressions in narrative discourse and whether their performance and development in terms of grammatical and pragmatic use of referential expressions for introducing, maintaining and reintroducing referents is similar. The results indicate that children already have a well-developed repertoire of referential expressions at age 4 and demonstrate a good understanding of the pragmatic use of referential expressions and of the distinction between different information statuses of referents, defined as *new*, *given,* and *accessible*. The use of referential expressions develops significantly in monolingual and bilingual children in the analyzed age range, especially with regard to the choice of referential expressions for the introduction and reintroduction of referents. Despite partly significant differences within age groups in monolingual and bilingual children, all samples show similar results by age 6 at the latest, i.e., bilingual children are able to reorganize the reference systems of their two languages accordingly during the language acquisition process up to this age and to use referential expressions in a manner that corresponds to the target language. At the same time, bilingual children use similar referential strategies and show partly parallel developmental patterns in their two languages. Such parallels are also observed between monolingual samples in Russian and German to some extent.

Zusammenfassung

Die Dissertation befasst sich mit der Verwendung referentieller Ausdrücke im narrativen Diskurs monolingualer und bilingualer Kinder im Russischen und Deutschen. Insgesamt wurden 188 Erzählungen untersucht, elizitiert durch Bildergeschichten von 60 bilingualen und 68 monolingualen Kindern in 3 Altersgruppen (4-, 5- und 6-Jährige). Das Hauptziel der Studie war herauszufinden, wie russisch-deutsch bilinguale Kinder und monolinguale Kinder der jeweiligen Sprachen mit der Wahl der referentiellen Ausdrücke im narrativen Diskurs umgehen und ob ihre Leistung und Entwicklung in Bezug auf die grammatische und pragmatische Verwendung referentieller Ausdrücke für die Einführung, Weiterführung und Wiedereinführung von Referenten ähnlich sind. Die Ergebnisse weisen darauf hin, dass Kinder bereits im Alter von 4 Jahren ein gut ausgebildetes Repertoire an referentiellen Ausdrücken haben und ein gutes Verständnis für deren pragmatische Verwendung sowie für die Unterscheidung zwischen den Informationsstatus von Referenten *new* (neu)*, given* (gegeben) und *accessible* (zugänglich) zeigen. Die Verwendung von referentiellen Ausdrücken entwickelt sich bei monolingualen und bilingualen Kindern in der analysierten Altersspanne signifikant, insbesondere in Bezug auf ihre Wahl für die Einführung und Wiedereinführung von Referenten. Trotz teilweise signifikanter Unterschiede in den Altersgruppen monolingualer und bilingualer Kinder zeigen alle Stichproben ähnliche Ergebnisse spätestens im Alter von 6 Jahren, d.h. dass bilinguale Kinder in der Lage sind, im Laufe des Spracherwerbsprozesses bis zu diesem Alter die Referenzsysteme ihrer beiden Sprachen entsprechend zu reorganisieren und referentielle Ausdrücke zielsprachlich zu verwenden. Gleichzeitig verwenden bilinguale Kinder ähnliche referentielle Strategien und zeigen teilweise parallele Entwicklungsmuster in beiden Sprachen. Solche Parallelen sind zum Teil auch zwischen den monolingualen Stichproben im Russischen und Deutschen zu beobachten.

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1 Introduction

1.1 Discourse and reference

It would be difficult to imagine language without communication and communication without language. Although there are many forms of communication present in nature, language became the main vehicle of thought and intention between human beings. To highlight the overall complexity of language, one could quote a famous philosopher and psychologist William James, who said that “language is the most imperfect and expensive means yet discovered for communicating thought.” (AZQuotes, n.d.) At the same time, human languages are constructed in a way that allows for great freedom of thought and variability of description. As stated by Noam Chomsky (1970), “[l]anguage is a process of free creation; its laws and principles are fixed, but the manner in which the principles of generation are used is free and infinitely varied. Even the interpretation and use of words involves a process of free creation.”

When thinking about language and discourse in general terms, a few things come to mind: the communicative needs of discourse participants and linguistic devices used for conveying information in discourse and for achieving communicative goals. At this point, one cannot avoid mentioning the *Gricean communication principles, or maxims*, also called *Gricean pragmatics*, which describe the communicative nature of speaker’s or writer’s intentions and the (mutual) interaction of speaker and listener in discourse (Grice 1975). H. Paul Grice, one of the most prominent modern researchers in the field of communicative sciences and pragmatics, formulated basic rules of communication (as described in Finegan 1994:339-341):

1. Maxim of Quantity: *“Be appropriately informative”.* “[S]peakers are expected to give as much information as is necessary for their interlocutors to understand their utterances, but to give no more information than is necessary”.
2. Maxim of Relevance: *“Be relevant at the time of the utterance”*. This maxim “directs speakers to organize their utterances in such a way that they are relevant to the ongoing context”.
3. Maxim of Manner: *“Be orderly and clear”*. “This maxim dictates that speakers and writers avoid ambiguity and obscurity and be orderly in their utterances.”
4. Maxim of Quality: *“Be truthful”.* “Speakers and writers are expected to say only what they believe to be true and to have evidence for what they say”.

These principles represent certain rules of rational behaviour in communicative discourse which should (ideally) be respected by all discourse participants. They are generalized for any kind of discourse. However, depending on the discourse type, they can be implemented in different ways. Also, if there is a violation of one of the principles, it does not necessarily mean that the cooperation principle is violated as well. For example, in the fictional literature there is no need to follow the maxim of quality literally as the fictional character of this genre allows for descriptions and statements that can be interpreted in the real world as untrue.

Generally speaking, the communication principles build a basis for the speakers' choices in discourse construction, and, among others, referential choice. As underlined by Schiffrin (1994:227), "[w]hat Gricean pragmatics thus provides is a set of principles that constrains speakers' sequential choices in a text and allows hearers to recognize speakers' intentions by helping to relate what speakers "say" (in an utterance) to its text and contexts".

Nowadays discourse and pragmatics represent a large domain of investigation for philosophers, cognitive and communication scientists, and linguists. In linguistics, this domain includes, among other topics, the study of reference and referential devices. This dissertation is concerned with reference in discourse; in particular, it investigates the use of referential expressions[1] in narrative discourse of monolingual and bilingual children in two different languages, Russian and German.

In discourse, different *entities*, e.g., discourse participants, living beings, objects, locations, etc. are mentioned at a certain point of the discourse. Such mentions are called *reference* or *referring*. The *referent*, on the other hand, is the entity which is mentioned (see Kibrik 2001).[2] Different types of *referential expressions* can be used for mentioning a referent at different points of the discourse, e.g., noun phrases, overt pronouns, or null pronouns (zero forms). Each language has a set of language-specific referential expressions, and a speaker needs to choose an appropriate one at each particular point of the discourse in order to refer to discourse referents. This process is called *referential choice*. According to Kibrik (2001:1124), "referential choice is among the most fundamental skills of language users. About every third word in discourse (sometimes even more than that) is dependent on the process of referential choice. Clearly, linguistic communication would never be possible without this faculty". However, the process of referential choice is rather complex and involves different pragmatic and cognitive processes, such as the information status of a referent, degree of accessibility, and cognitive activation (relevant theoretical approaches to referential choice are presented in Chapter 2).

Thus, referential devices are important cohesive means (also referred to as *referential cohesion*) used not only for referring to discourse referents but also for conveying information in the discourse about these referents in a coherent and comprehensive way.[3] For instance, they signalize the speaker's assumptions about the listener's knowledge. A previously

[1] In the literature, the terms *referring* and *referential expressions* are often used synonymously. The choice of one of them may depend on the author's preferences and language. Sometimes, however, the distinction is made on the basis of analysis: if both first mentions of discourse referents (including indefinite noun phrases) and subsequent mentions (referring to the introduced discourse referents) are included in the analysis, then the term referential is used; if only expressions used for referring to already introduced discourse referents (excluding first mentions) are under analysis, then the term referring is used. In the framework of the present study, it is important to take all types of referential expressions into account to follow up on the use of reference in children's narratives throughout the whole story, including introduction of discourse referents. To emphasize this, I continuously use the term *referential expression*. The term *referring expression* is used only in cases when I refer to other sources where the term *referring expression* was originally used by the authors.

[2] According to Kibrik (2001:1123), entities are to be understood "as entities in the language user's minds" and not as "entities in real world" since the latter would be problematic for imaginary entities.

[3] Generally, *cohesion* refers to linguistic devices used for expressing content, while *coherence* refers to the structure of content (Hickmann 1995:201).

unmentioned referent, unknown to the listener, can be introduced by means of an indefinite or definite noun phrase, whereas a previously mentioned referent which is still active in the speaker's and listener's minds can be referred to by means of a pronoun. Referential expressions serve to express the level of topic continuity, speaking in Givón's terms (Givón 1983, see more on Givón's theory in Chapter 2, section 2.2). It could even be argued that without a variety of referential expressions the discourse would be less fluent and cohesive, sometimes even incomprehensible, if referential expressions are used inappropriately. For example, a story where the speaker refers to discourse referents only by means of pronominal expressions might be very difficult for the listener to understand without any additional cues. Hence, in order to become a successful speaker of a language, one must acquire the pragmatic use of referential expressions along with the grammar of a language.

1.2 Studying reference in child narrative discourse

Of course, not only adults but also children communicate and actively construct their discourse from early on. Although even very small children, as young as 2-3 years old, partly show amazing pragmatic competence and sensitivity to different discourse constraints (e.g., De Cat 2008; Matthews, Lieven, Theakston, & Tomasello 2006; Wittek & Tomasello 2005; inter al.), the process of acquisition is long and complex, from early childhood to adolescence (e.g., Berman & Slobin 1994; Hickmann 1995, 2000; Karmiloff-Smith 1986; Verhoeven 1993; Verhoeven & Strömqvist 2001; inter al.). Children gradually acquire pragmatic and discourse constraints, including referential choice and communication principles, and implement them at different stages of their language development. Different studies relate, e.g., the acquisition of communication principles to the acquisition of the theory of mind and even attribute more pragmatic awareness to bilingual children (e.g., De Cat 2008; Siegal, Iozzi & Surian 2009, see also Chapter 2 and Chapter 3, section 3.1 for more details).

Already very young children are confronted with different types of discourse, e.g., conversations, stories, and fairy tales, accounts of what they have seen or done during the day, descriptions, etc. Generally, children try to make their intentions clear to their listeners in order to be understood. In a communicative context including an interaction between the speaker and listener they succeed quite well from early on, as was demonstrated by many studies (see Chapter 3 for the overview). However, narrative discourse seems to be rather pertinacious for children in comparison to e.g., conversational discourse. Bel, Ortells, and Morgan (2015:610) emphasized the long process of acquisition of narrative and pragmatic skills, especially with regard to narrative discourse:

> *„In studies of L1 acquisition, children quickly acquire the patterns of their native spoken language, but full development of narrative skills and the ability to introduce and maintain referents cohesively across stretches of sentences continues throughout childhood (e.g., Hickmann, 2004), particularly for anaphoric pronouns (Shin & Cairns, 2012). This extended development is due to children's growing awareness of which linguistic forms should be used according to their addressee needs. This development is intertwined with pragmatic awareness of referential choices, metalinguistic skills and theory of mind. Narrative also requires the coordination of other cognitive abilities linked*

to memory, information processing and the understating of abstract concepts (e.g., Berman & Slobin, 1994; Hendriks, Kosters, & Hoeks, 2013).“

Regarding the use of referential expressions in narrative discourse, consider the following example[4] of a story told by a German 4-year-old monolingual child that was presented with picture stimuli:

(1) (md119, 4;02, German monolingual)

Fisch. Ein Vogel. Fuchs. Auch Fuchs, und ein Vogel. Da kommt der Fuchs nicht ran. Da fangt [: faengt] der den Fisch. Jetzt hat der den Fisch, der Fuchs. Da piekt der den rein und dann hat der den Fisch. Dann kriegt der den und dann kriegt der den nicht.

(Fish. A bird. Fox. Also fox, and a bird. Here the fox doesn’t get to it. There he/DEM catches the fish. Now he/DEM has the fish, the fox. There he/DEM picks him/DEM inside and then he/DEM has the fish. Then he/DEM gets him/DEM and then he/DEM doesn’t get him/DEM.)

Although the discourse protagonists are named in the beginning, in the course of the story the child starts to use almost only demonstratives, and it is unclear to which characters they refer. Without any additional help to the listener, e.g., in form of pictures, pointing, or clarifying questions, it would be almost impossible to understand what the story is about, who the protagonists of the story are, and who interacts with whom.

Now, consider an example of a story told by a much older child, this time an 8-year-old Russian-German bilingual:

(2) (br255, 8;04, Russian-German bilingual)

Da hat ein Vogel einen Fisch gesehen. Aber der ist nicht ganz, sondern nur die Knochen von den [*][:dem] Fischen [*][:Fisch]. Und er fliegt dahin. Da hat er den Fisch sich geschnappt und da kommt ein Wolf an. Da ist der Wolf schon angerannt und springt hoch nach den [*][:dem] Fischen [*][:Fisch]. Da faellt dem Vogel der Fisch aus dem Mund. Da entwischt der Fuchs mit dem Fisch und der Vogel fliegt hinterher. Da hat sich der Vogel wieder sein[*][:seinen] Fisch geschnappt und fliegt weg.

(There a bird saw a fish. But he/DEM is not complete, only the bones of the fish. And he flies there. There he took the fish and then a wolf comes. There the wolf comes running and jumps high for the fish. There the fish falls down from the mouth of the bird. There the fox escapes with the fish and the bird flies after him. There the bird grabs his fish again and flies away.)

This story is much more coherent and includes naming and introducing of all protagonists. After being introduced, the protagonists of the story are mostly referred to by means of definite noun phrases and occasionally pronouns (personal and demonstrative), as the protagonists of the story are in constant interaction with each other. With regard to reference, the difference between the stories told by the younger and the older child is striking,

[4] In the presented examples, the demonstrative pronouns *der/die/das,* also called *d-pronouns,* are translated into English as personal pronouns, as they have almost the same function in child discourse in German and, in addition, can demonstrate the variations in gender (more details on this issue are presented in the overview of the German referential system in Chapter 4). For better readability, almost all transcription symbols were taken out, except for error marking. The choice of stories was random, at this point it does not matter whether children are monolingual or bilingual.

illustrating that the acquisition of discourse properties represents a long-term process, starting from early childhood and continuing long after children reach school age.

As described by Verhoeven (1993:310), “the way of representation of major characters in a narrative is crucial for its organization”. However, acquiring linguistic forms of referential expressions alone does not guarantee the discourse competence and does not lead *per se* to the appropriate choice of a referential expression in narrative contexts. Karmiloff and Karmiloff-Smith (2002:175-176) nicely underline the importance of the acquisition of pragmatic use of referential expressions:

> *“Since every referential expression has multiple functions, it is a child’s ability to orchestrate the interplay of all these functions, in particular the dialogic and narrative functions, that constitutes discourse mastery. Discourse marking does not involve using new grammatical structures. Rather, it requires learning to use existing structures in new ways.”*

Thus, children must acquire how to use referential expressions available in their language according to certain pragmatic rules. Depending on the discourse type, the rules are often different. In addition, children have to learn how to make their discourse informative and coherent, not only from their own perspective (speaker) but also from the perspective of the listener. As pointed out previously, children’s awareness of the listener’s needs in the use of referential expressions grows with time and develops together with the acquisition of other discourse constraints.

Moreover, the acquisition of narrative skills in general (including the use of referential expressions) is important not only for the sake of the discourse itself but also for the acquisition of academic skills, first and foremost literacy, including vocabulary and reading abilities, as well as social abilities later on (cf. Bliss et al. 1998; Gutiérrez-Clellen 2002; McCabe 1996; Norris & Bruning 1988; Uccelli & Páez 2007). According to Westby (1999, as cited in Schneider, Hayward, & Dubé 2006:224), “oral stories are considered to be a form of literate language and to serve as a bridge between oral and written styles”. Thus, narrative skills belong to the basic equipment children need for well-balanced language development. In addition, particular features of storytelling can even be used as indicators of potential problems bound to general language development, including specific language impairment (cf. Botting 2002; Gagarina et al. 2012; Ingold et al. 2005; Schneider & Hayward 2010; Skerra et al. 2013, see more in Chapter 3).

Studying children’s discourse is a fascinating but also challenging task, given the many difficulties inherent in accessing linguistic and pragmatic knowledge in young children and in interpreting research findings related to general linguistic performance. In the last decades, research on pragmatics and on reference in particular has considerably increased in the domain of language acquisition and development. As a consequence, many different studies have already been conducted, contributing to a greater understanding and development of these research fields (see Chapter 3 for the overview). At the same time, the research findings are often contradictory. As criticized by Meibauer (2013), the acquisition of pragmatic constraints and pragmatic development in children is not studied enough, and there is no systematic description of pragmatic acquisition and development yet. Thus, the

ongoing research in this domain is very important. The present study aims to contribute to this domain of research.

Narrative discourse proved to be a good means of investigating reference, especially in child discourse. Given the variety of narrative tasks and methods of elicitation, different foci can be set while choosing an appropriate task for investigating specific phenomena (more details on narrative tasks and elicitation techniques are given in Chapter 2, section 2.1). In addition, when investigating the use of reference in child narrative discourse, the narrative task should allow for producing a narrative long enough to establish and maintain reference to the discourse protagonists. At the same time, it should be easily performed and applicable to the target groups, e.g., very young children. Thus, the choice of a narrative task is by no means random. Moreover, as continuously shown in many studies (see overview in Chapter 3), the type of narrative task and the method of presentation are among the essential factors leading to differences in children's narrative production, including the use of referential expressions.

The children's age is also an important factor to be taken into account when investigating pragmatic and narrative development. It has been shown in many studies that the acquisition of pragmatic/discourse competence, including referential cohesion, is a domain of later acquisition, i.e., the acquisition of those features is completed much later than the acquisition of syntactic and morphological features of a language (cf. Bamberg 1994; Berman & Slobin 1994; Hickmann 2003; Kail & Hickmann 1992; Karmiloff-Smith 1981, 1983, 1985, 1987; Nicolopoulou et al. 2011; inter al.). It is also known from previous research that the system of reference itself, i.e., linguistic forms of referential expressions, is already well developed by age 3-4 in monolingual children so that they can operate with various forms by age 4.

At the same time, from the pragmatic point of view, children's narrative discourse is not yet developed enough nor is it adult-like yet. As described in Verhoeven (1993:306), Karmiloff-Smith (1979, 1986) stated that "[d]iscourse can be seen as the most significant domain of later language acquisition. Around age 5, developmental shifts take place from intra- to intersentential devices, from basic structures to additional functions and from extra- to intralinguistic abilities". Many studies on referential cohesion have shown that children become more pragmatically competent by age 5-6 or even 9 at the earliest, taking into account different discourse constraints (Hickmann 1995, 2000; Kail & Hickmann 1992; Karmiloff-Smith 1979, 1987; Karmiloff & Karmiloff-Smith 2002; inter al.). Contrary to this, other studies claim that, also in the narrative discourse, children show pragmatic competence already much earlier, at age 3-4 (cf. Clancy 1992; De Cat 2011; Emslie & Stevenson 1981; MacWhinney & Bates 1978; Orsolini & DiGiacinto 1996; inter al., see also Chapter 3 for the overview).

Based on findings from previous research, the age range between 4 and 6 seems to be the age where important changes with regard to the use of reference take place. It should therefore be investigated in more detail. If the role of narrative competence in general language development and academic success is to be taken into account, the investigation of narrative abilities must consider children long before they enter school. This allows for

examination of which pragmatic and narrative competences develop from early on and build the basis for future improvement and success in academic performance later at school. It would also be interesting to see whether potential differences in the use of referential expressions in monolingual and bilingual narratives can contribute to this goal. That is why one of the goals of the present work is to compare performance and development of monolingual and bilingual children with regard to the use of referential expressions in narratives in the given age range.

1.3 Studying bilingual children

More than half of the children around the world grow up bilingually or even multilingually (Grosjean 2010, Romaine 1995). Thus, bilingualism or multilingualism is certainly not exceptional but rather the norm when looked at from a global perspective. Even though during the last decades bilingual children have been studied quite extensively, studies on bilinguals are still underrepresented. This, however, is not surprising *per se* due to the immense variety of language combinations, different types of bilingualism, settings, etc. The additional challenge of studying bilinguals is that it is rather difficult to control for differences in the language acquisition process of bilingual children in both languages due to their very different language histories. Factors such as age of language onset, length of exposure to each language, quality of input, interactions between languages, different language combinations, different language and social settings, etc., are all to be accounted for. It is then rather difficult to build homogenous groups of bilinguals that fulfil precisely the same criteria and which are big enough to be representative for larger populations. Research findings on bilingual children from different studies are thus often contradictory and representative mainly for the respective analyzed samples.

Moreover, if the research concerns the cognitive and pragmatic development, which is not easy to access, it is especially demanding to clearly differentiate between specific phenomena occurring naturally in the process of language acquisition and those phenomena which occur due to *bilingual* language acquisition. In this respect, acquisition of referential expressions and their discourse properties represents another challenge for bilinguals, who are faced with the necessity of distinguishing between two systems of reference. Bel, Ortells, and Morgan (2015:609) indicated that according to Givón, „in second language (L2) acquisition, speakers have to master the range of language devices that exist in the target language to introduce, maintain and reintroduce referents into discourse, and some of these devices may not have counterparts in their first language. They also have to identify the pragmatic contexts which trigger each device (Givón 1983).”

At the same time, given the increasing number of studies on bilingual language acquisition in various domains, studying reference and the use of referential expressions in bilingual children has only recently become the research focus. Nonetheless, quite a number of studies have been conducted on bilingual children’s narrative discourse (see Chapter 3 for overview). Some of them dealt in particular with interaction between languages in the use of

referential expressions in narratives (cf. Aarssen 1996; Chen & Lei 2013; Gagarina 2008, 2012; Serratrice 2007a; Topaj 2010; Verhoeven 1990; inter al.).

In the present study, bilingual children along with monolingual ones make up the focus of the investigation. The motivation for investigating bilinguals, in particular bilinguals with the bilingual first language (2L1) acquisition path, is twofold: first, from the theoretical point of view, different types of bilinguals need to be studied in more ways due to the lack of research; second, from the practical point of view, the 2L1 acquisition path is one of the most common bilingual types in migrant settings, e.g., in Germany, where the present study is conducted (see more on bilingual types in Chapter 2, section 2.3). Therefore, the results might be representative and applicable for a large group of bilingual population.

In Germany, the majority of preschool children are monolingual, in contrast to many countries where the entire population grows up with two or even more languages. Foreign languages, such as English, French, Spanish, Russian, etc., are acquired in Germany mainly at school, where the attained level of competence varies considerably. At the same time, bilinguals are no longer rare in Germany, foremost among migrant populations. It can even be claimed that Germany has meanwhile unofficially become a country of immigration. People with migrant backgrounds make up around 19,5% of the population in Germany, originating from other countries or with parents who originated from other countries (Statistisches Bundesamt 2012)[5]. About 30% of children under 6 years old are from families with migrant backgrounds and grow up bilingually or have a family language other than German (cf. Ruberg 2013, Gagarina 2013). Therefore, many bilingual types and many different languages are present in the population.

The migrant population is more vulnerable in many respects, including with respect to acquisition of the host country's language. Without getting into political, social, and educational policies in Germany, it should be pointed out that, for most migrant children the acquisition of German as the language of environment takes place mainly in kindergarten (which is nowadays considered more and more of an educational institution). Depending on the educational policy and its organization in each federal state as well as on the individual situation, children usually start kindergarten around age 2-3, but they can enter day care much earlier or sometimes much later. Among other factors, the age of entering the kindergarten depends also on the cultural and linguistic background: according to the NUBBEK-study, *Nationale Untersuchung zur Bildung, Betreuung und Erziehung in der frühen Kindheit* (Tietze et al. 2013), the mean age of German monolingual children starting kindergarten is 1;11, while the mean age of children with Russian migrant background is 2;07 and with Turkish migrant background – 2;11. Most children from migrant families have, therefore, no or little exposure to L2 German prior to kindergarten, unless German is one of the family languages (e.g., if one of the parents speaks German). For those children the exposure to L2 German usually starts somewhere between age 2 or 3. According to the

[5] The exact definitions of "migrant" and "with migrant background" in Germany as well as issues bound to this theme are not within the scope of this work. For definitions see, for example, Statistisches Bundesamt 2012:5-6; 380.

recent classifications of bilingual types, these children could be considered simultaneous or early sequential bilinguals, following the path of 2L1 acquisition (see Chapter 2, section 2.3 for more details). Exactly this group of children is the focus of the present study.

The type of bilingualism is one of the major factors to be accounted for when investigating child language in a bilingual context. Too often studies on bilinguals investigate groups that are quite heterogeneous, e.g., several bilingual types are mixed within one group. One should account for such factors in order to minimize the influence of additional factors on the children's linguistic performance. The present study focuses on bilingual children with one type of bilingualism based on type of language acquisition and length of exposure: all children grew up with Russian as their first language (L1) spoken at home and German as their second language (L2) acquired in kindergarten with the latest age of onset at 3;3 years (considering these children to follow the bilingual first language (2L1) path of acquisition) and with a minimal length of exposure to L2 German of one year prior to the first testing. Other factors taken into account for sampling monolingual and bilingual participants are given in more detail in Chapter 5, section 5.1.

Another reason to study bilingual children in more contexts is to show that bilingual language acquisition is generally unproblematic (given appropriate language input) and that bilingual children can be at least as proficient as monolingual children, even if some differences in the process of language acquisition and development exist. There are still many prejudices and a lack of information when it comes to bilingualism and bilingual language acquisition, leading to false assumptions or statements referring to bilingualism as an unnecessary burden or even as an obstacle to "normal" language development. At the same time, according to new studies, bilingual children might even have cognitive and socio-pragmatic advantages compared to monolinguals (see Chapter 2, section 2.3 for more details on this issue).

Although bilingual children starting L2 acquisition early can in many respects acquire an L2 in the same way as their L1, it is not quite clear when exactly and how bilingual children start to use the whole range of referential expressions in both of their languages, especially if the acquisition of the L2 starts much later, e.g., at age 3. One of the goals of the present study is, therefore, not only to investigate the use of referential expressions in narrative discourse of bilinguals in a certain age range but also to follow up the development of grammatical and pragmatic features of referential expressions across different age groups within the given age range.

Studying bilingual children also implies a systematic comparison with monolingual children. Monolingual children, in their turn, could be an example of how linguistic competences are acquired in one particular language, without interactions with and influences from other languages. Beyond doubt, investigating bilingual children is also valuable *per se*. However, comparing both groups could give more thorough insights into the nature of language acquisition and development, as has been demonstrated in many studies reviewed in Chapter 3. This type of comparison is performed in the present study as well.

1.4 Languages of interest: Russian and German

As for the languages to be investigated, there were several reasons for choosing the combination of Russian and German and consequently Russian-German bilingual children.

First, children from Russian-speaking families represent one of the largest immigrant communities in Germany, constituting around 3 million Russian speakers (Brehmer 2007; Statistisches Bundesamt 2012)[6]. Russian as spoken by such a large number of people is, therefore, one of the most vital languages in Germany (Achterberg 2005). To a large extent, it is still well preserved in the second generation of immigrants, although some tendency towards a preference for German in the Russian-speaking community can be observed as well (Anstatt 2008a). At the same time, Esser (2006) claims that the second generation of immigrants is already showing a step towards assimilation as reflected in the reduced ability to speak the home language (Anstatt 2009:111). In the case of Russian, supported not only at home but also via media, networks, educational programs, and contact with Russian-speaking countries, the parameters that play a role in preserving the home language in Esser's study (Esser 2006) are predominantly positive (Anstatt 2008a, 2009). Thus, Russian has a good chance of being preserved longer and at a good qualitative level. In any case, Russian-German bilingual children might have specific linguistic (and developmental) peculiarities in both Russian and German which should be investigated in more detail.

Second, this combination of languages is particularly interesting due to their typological similarities and differences, especially in the domain of reference: e.g., similarities in distribution of basic linguistic forms but, at the same time, differences in the use of these forms in the first place, due to the presence of the article system in German and the absence of it in Russian (a detailed description of the referential systems is provided in Chapter 4). Hence, in the present study the use of referential expressions is examined in crosslinguistic comparison as well.

Finally, the author of this dissertation is a native speaker of Russian and a near-native speaker of German and possesses necessary knowledge for investigating both languages more closely.

Beyond these reasons, the number of studies concerning Russian-German bilingual children until of late remained rather moderate. Only in the last ten years has much more research been done in this area. Some of the studies deal with the acquisition of specific morphological categories in Russian only, e.g., aspect (Anstatt 2006, 2008b, 2008c; Büchner

[6] There is no exact information on the number of Russian-speaking people in Germany. The problem is that, even if migrant population is meanwhile covered by different statistics, the language they speak is not. Given that Russian language was spoken in all countries of the former Soviet Union and continues to stay the language of communication for millions of people in nowadays independent countries, it can be assumed that many people emigrating from these countries to Germany speak Russian. Brehmer (2007) made an attempt to summarize Russian-speaking migrant population in Germany according to the type of migration and the country of origin and came up with 2,9 million. Although his counting is only approximate, the information obtained on the basis of statistics from the Statistisches Bundesamt (2012) suggests that the numbers stay in the same range, but again, it should be stressed that it is not possible to calculate exact numbers for reasons given above. Sometimes even much higher numbers are cited, e.g., 4 million Russian-speaking people in Germany in Soultanian, Mihaylov, and Reich (2008), but they have not been documented or confirmed.

2000), gender (Dieser 2009), nominal morphology (Anstatt 2006; Klassert & Gagarina 2009); as well as lexicon (Anstatt 2006; Meng 2001; Protassova 2004), general language development (Anstatt 2009), or language attrition (Anstatt 2011; Protassova 2007). Other studies focus on acquisition of German by Russian-German bilingual children (Kostyuk 2005; Soultanian 2012). Several studies investigated both Russian and German in Russian-German bilingual children: e.g., family conditions for language acquisition in Russian-speaking children in Germany (Meng 2005), metalinguistic abilities (Kocianová 2005), the influence of input on bilingual language development (Klassert & Gagarina 2010), lexical development (Klassert 2011), impact of internal and external factors on linguistic performance (Armon-Lotem, Walters & Gagarina 2011), use of connectives in bilingual narratives (Tribushinina, Valcheva & Gagarina 2017; Gagarina 2012), macrostructure in narratives (Reichenbach, Skerra & Gagarina 2012), acquisition of negation (Reichel 2013), language proficiency and social identity (Walters et al. 2014), or effect of age and input quantity on linguistic performance (Gagarina et al. 2014).

At the same time, little is known about how Russian-German bilingual children operate with two referential systems that differ in essential aspects for constructing a (coherent) discourse in each of their languages. It is only recently that more attention has been paid to the investigation of reference in bilinguals of this language combination, e.g., the use of anaphoric pronominal reference by simultaneous and consecutive (sequential) bilinguals in the studies of Gagarina (2008, 2012) or in my own studies (Topaj 2010, 2011), where several aspects of reference were investigated in bilinguals as well. Without doubt, more studies are needed on this particular language combination in order to obtain a better understanding of language processes, challenges and advantages in acquisition and use of these languages. Thus, one of the reasons for conducting the present study was to contribute to the research on bilingual children in this language combination in the domain of reference.

1.5 Goals of the present study

Strongly motivated by considerations presented in the previous subsections, the present study aims to investigate the use of referential expressions in child narrative discourse in Russian and German, taking both grammatical and pragmatic constraints into account, in order to give a more complete picture of the use of reference in the analyzed languages. It is also important to note that the analysis includes all types of referential expressions proper to the referential systems of the two languages and typical for the child narrative discourse (see Chapter 4 for the description of the referential systems of the analyzed languages). This strategy helps to shed more light on different phenomena related to referential choice which otherwise might remain unnoticed if analyzed in isolation. The pragmatic use of referential expressions is analyzed with regard to the information status of discourse referents, classified as *new, given,* and *accessible* according to the theoretical approaches which provided the basis for the present study (see more details on this classification in Chapter 2, section 2.2).

The present study investigates production of referential expressions in child narrative discourse. Although it has been repeatedly shown that children produce better narratives in retelling tasks (cf. Bamberg 1987; Schneider & Dubé 1997), the present study deals with children's spontaneous narration related to a particular narrative task, a so-called picture-based story (telling of a story based on pictures). In this way, children's ability to construct a story entirely on their own is analyzed, and not their ability to produce the best possible narrative. The exact methodology of the task procedure is presented in Chapter 6.

With regard to the assumptions to be made about children's competence in production as well as for the subsequent interpretation of results, it is important to know at what age and what kind of pragmatic competence children demonstrate at the level of production and comprehension. Therefore, along with studies on the use of referential expressions in child narrative discourse, studies on children's comprehension skills bound to this domain of reference are taken into consideration as well (the overview of studies is given in Chapter 3).

Both monolingual and bilingual children are the focus of the current investigation. One goal is, therefore, to analyze their usage of reference in each language and compare it not only within each language but also crosslinguistically. Beside children's performance at a particular age, another goal is to track changes in their narrative and pragmatic development within a particular age range when specific changes can be expected. The narrative data were collected, therefore, from bilingual and monolingual children in three age groups: 4-, 5-, and 6-year-olds. Monolingual children, as one of the investigated groups, also serve as a reference group for bilingual children. Although the collected data come from different projects, great importance has been placed on using the same stimuli, same method of presentation, and coding the data in the same way (see Chapter 6 for more details).

No adult data were used for direct comparison in the present study. Adults are not *per se* the only reference group for children, as child language might undergo many different stages on the path to acquiring grammatically and pragmatically appropriate discourse and can thus be compared to different groups. In addition, it is not clear to which adult group bilingual children growing up in a bilingual environment can be compared. The input that bilingual children receive from their parents and environment might be in many ways different from the input of purely monolingual parents and the environment in a monolingual country. Beyond that, adults also differ in their language use, depending on age, language experience, educational background, social status, etc. This means that, for proper comparison, several groups of monolingual adults are needed, not to speak of bilingual ones, and many factors related to adults must be taken into account. While it would be interesting to compare child data to the adult data as well, an additional comparison to adults exceeds the limits of the present study.

1.6 Structure of the dissertation

Chapter 1 introduces the general framework of the (narrative) discourse, reference and referential choice, pragmatic and narrative development of monolingual and bilingual

children, as well as target groups and languages. The background information, presented in this chapter, served as a rationale and motivation for the dissertation.

Chapter 2 provides theoretical background on the domains essential for the current study. It consists of three parts: domain of (narrative) discourse, including discourse traditions and general classifications as well as classification of narrative types within the narrative discourse; domain of reference with sections on referential devices, factors influencing referential choice and theoretical frameworks, serving as a basis for the analysis of referential expressions; and domain of child bilingualism, including classifications of bilingual types, hypotheses on bilingual language acquisition and development, and effects of bilingual language acquisition. These are all important for building hypotheses about the use of referential expressions in Russian-German bilingual children as well as monolingual children of the corresponding languages, who are the target groups of the present study.

Chapter 3 presents an overview of studies on reference and narrative discourse in monolingual and bilingual children, related to reference production and reference comprehension under natural or experimental conditions. In order to set the goals for the present study, to interpret results and compare them to the previous research, it is necessary to show what has already been done in the domain of child (narrative) discourse, what children's referential abilities are, at what age they are acquired and under which conditions, what the current problems are with interpretation of results, differences in methodologies, etc.

Chapter 4 provides a detailed description of Russian and German referential systems, including examples for all types of referential expressions which are typical for child narrative discourse.

Chapter 5 presents research questions, hypotheses, and specific predictions about the grammatical and pragmatic use of referential expressions in narrative discourse of monolingual and bilingual children in Russian and German. In section 5.1 (grammatical use), the research questions address general distribution of referential expressions in children's narratives, focusing on differences and similarities in children's performance and development over age in each investigated language as well as in crosslinguistic comparison. Possible crosslinguistic interactions are questioned as well. In section 5.2 (pragmatic use), further research questions address the use of referential expressions with regard to their information status (*new, given, accessible*), in particular, how referential choice changes according to the referents' information status and which types of referential expressions are predominantly used for introducing, maintaining, and reintroducing discourse referents. Here as well, children's pragmatic performance and development over age in each language as well as in crosslinguistic comparison are the focus of the research, with special attention paid to language-specific versus more universal use of reference across languages.

Chapter 6 describes the methodology used for the study in detail. It includes sections on participants, task design and procedure, transcription and coding of narrative data, narrative corpus, as well as methods of data analysis.

Chapter 7 presents the results of the study in two sections. Section 7.1 presents the findings on the grammatical use of referential expressions in monolingual and bilingual child narrative discourse; section 7.2 presents the findings on the pragmatic use of referential expressions. In each section the results are presented per language, Russian and German, and then in crosslinguistic comparison. A general overview of the data is given in the beginning of each section and subsection, followed by detailed statistical analyses for all types of investigated referential expressions.

Chapter 8 provides the summary of results. They are interpreted and discussed in light of previous research. The structure of the summary corresponds to the order of the research questions, hypotheses, and specific predictions, as presented in Chapter 5. Section 8.1 is concerned with the grammatical use of referential expressions and section 8.2 with their pragmatic use in narrative discourse of monolingual and bilingual children in Russian and German.

Chapter 9 gives overall conclusions, including a short overview of the present study, its limitations and implications as well as ideas and desiderata for future research with regard to the investigation of reference in narrative discourse of monolingual and bilingual children.

2 Theoretical background

2.1 Domain of (narrative) discourse

2.1.1 Discourse traditions and general classifications

The tradition of studying discourse is very old. In the Western tradition, it goes as far back as Ancient Greece, having gone through different definitions and classifications since then. Terms such as discourse type, art, mode, genre, text type, etc. are often confusing because used by different sciences in different ways. Even today there is no clear classification which would allow for combining different fields of research on communication and discourse, including linguistics.

For example, Aristotle, who is seen as one of the founders of communication science, distinguished between three *arts* of discourse in the study of rhetoric: *forensic (or judicial), deliberative (or political), and epideictic (or ceremonial)*, each of them following their own internal structure and strategies of persuasion. Kinneavy (1971), one of the most famous theorists on the methods and purposes of writing proposed in the last century, distinguished between discourse types that are based primarily on aims of discourse. Following Jakobson's communicative functions, he introduced four *modes* of discourse: *expressive, referential, literary,* and *persuasive*.

The classification of discourse *genres* is mostly related to the non-linguistic context associated with literature genres or to discourse communities (Swales 1990, as cited in Kibrik 2003). At the same time, discourse types such as conversation, dialogue, presentation, instruction, narrative, interview, etc. can also be labelled as genres. In addition, one can distinguish between different discourse *registers*, e.g., formal vs. informal, which can furthermore be applied to different discourse types or genres. Finally, one can distinguish between *oral* and *written* discourse, which are labelled as *modes*, *types,* or sometimes even *languages* depending on the framework. Oral and written discourses cannot be postulated as different genres, but rather as two polar discourse types at the top of the discourse hierarchy. Both written and oral discourses contain different discourse types of their own which, in their turn, follow their own rules and further classifications.

According to Scott (1994, as cited in Hughes, McGillivray & Schmidek 1997:5), discourse can be seen as a "continuum with informal, unplanned spoken conversation at one end and formal, planned, written academic/analytic discourse at the other. Along this oral-written continuum, many varieties of discourse overlap and intermingle. There is no tight developmental sequence for these varieties, although oral conversation naturally precedes written expository discourse."

Given the diversity in terminology across different sciences and the variation in types of discourse, it is very important to give a proper classification within each discipline, though this is still far from being clear and all-embracing. As argued by Kibrik (2003), another

difficulty in classifying discourse types is related to the fact that one discourse type can contain fragments which are generally attributed to other discourse types, e.g., when a conversation between friends includes descriptive, declarative, and argumentative types of discourse fragments or when a narrative includes narrative as well as descriptive or instructional fragments. In addition, Kibrik (2003:23) underlines that discourse types are so diverse that discourse models work only for those types for which they have been created and that there is no universal discourse model which would suit many discourse types at once.

This leads to the conclusion that discourse types, each having different structures, aims, and internal rules, may also influence the use of specific devices for constructing a coherent discourse according to the rules of that particular discourse type. Among other things, it can affect the use of referential expressions in different discourse types as well. This has already been investigated in several studies (e.g., Fox 1987; Biber 1991; Toole 1996, as cited in Kibrik 2001:1135; Biber, Conrad, & Reppen 1998).

For example, in one of these studies, Fox (1987) shows that there is a significant difference in referential choice in academic written discourse vs. conversational oral discourse. Fox interprets this as a genre-specific influence. However, written and oral discourses imply basic differences in the information flow such as more frequent reference to the same entities and higher accessibility of mental representations in the spoken language, which is more immediate and faster than the written one. Biber, Conrad, and Reppen (1998), on the other hand, compare the use of referential expressions in four different genres: conversation, public speech, news reportage and academic prose. They found differences in the use of referential expressions (new vs. given) as well as in the referential distance between a referential expression and its antecedent. In any case, in the research on discourse properties in general and especially when comparing research results from different studies, the peculiarities of each discourse type or genre should be accounted for. Results based on a certain discourse type are relevant, in the first place, for that particular discourse type and should not be automatically generalized for other discourse types without taking a closer look at the differences or similarities between the discourse types in question.

2.1.2 Classification of narrative types in the narrative discourse

Speaking about *narrative* discourse (the present work is mainly concerned with the narrative type of discourse) and its types, one can distinguish between different ways of classifying it. Narrative discourse can be seen as one of the discourse genres, *conversational, narrative,* and *expository* (Nelson 1993, as cited in Hughes et al. 1997:4). In general, “[n]arrative text (here the word *text* refers to both oral and written text) typically relates to the actions and/or the feelings and thoughts of characters who may be actual people, animals (real or cartoon), or imaginary characters” (Hughes et al. 1997:1). Thus, narratives do not only include fictional stories but also refer to real events. According to Health (1986, as cited in Hughes et al. 1997:2), there are four universal types of narrative: *recounts, accounts, event casts,* and *stories*. Also *scripts* are considered to be a narrative

type. The same types (sometimes with different labels) are described in e.g., Engel (1995), Peterson and McCabe (1983). More roughly, these types can be classified as personal narratives, fictional stories, and scripts.

In addition, there is an important distinction between *spontaneous* and *elicited* narrative discourse. The term *spontaneous* refers to self-initiated narratives, whereas *elicited* refers to narratives elicited with the help of different techniques, such as *story generation* or *story retelling.* The stories are then produced as a consequence of a direct request to tell or retell a story, not rarely along with additional visual stimuli in the form of pictures, films, objects as props, etc. The techniques and narrative tasks may also vary depending on the purpose of elicitation and its analysis. The collection of both spontaneous and elicited narratives may target perceptive and/or productive narrative skills, specific phenomena proper to a particular narrative task or the comparison between different narrative tasks, etc. (see the overview of studies in Chapter 3). Besides, it should be taken into account that, in comparison to story retelling tasks, story generation tasks are considered to be more demanding on the one hand, but more representative of narrative skills on the other (Lilies 1993, as cited in Hughes et al.1997:17). The hierarchy of procedures for collecting narratives is illustrated in Figure 1.

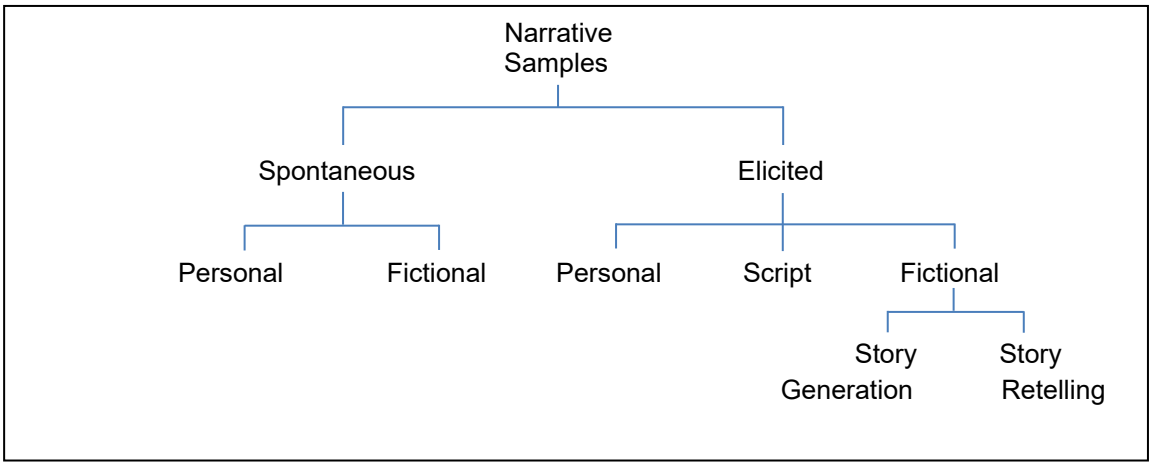


Figure 1. Hierarchy of Procedures for Collecting Narratives (adapted from Hughes, McGillivray, & Schmidek 1997:14)

Although in each category there is a variety of narrative tasks, in the framework of the present study the most interesting category is the one of elicited fictional stories. This is because picture-based stories serving as stimuli for eliciting children's narratives in the study belong to this category. This type of narrative task is presented in more detail.

A picture-based story is one of the most well-established methods for eliciting narratives in children, belonging to the category of fictional stories. This type of narrative task is adequate even for very young children due to its association with picture books. Picture-based stories have a long tradition. Selected examples of picture-based stories used in narrative research and language assessments are the so-called "Frog story", *Frog, where are you?*, created in 1969 by Mayer and widely used in a variety of projects (see Chapter 3 for more details)

across different languages; “Bus story”, *The Renfrew Bus Story Language Screening by Narrative Recall*, first published in 1969 by Renfrew and then adapted in 1994 (Cowley & Glasgow 1994); the CAT and HORSE stories (Hickmann 1982, 1987); ENNI, *The Edmonton Narrative Norms Instrument* (Schneider, Dubé, & Hayward 2005); FOX story (developed in the ZAS Language Acquisition Project, Gülzow & Gagarina 2007); and the most recent narrative tool, *Multilingual Assessment Instrument for Narratives (MAIN)* (Gagarina et al. 2012). New projects have been conducted recently, e.g., *COST-Action IS0804: Language Impairment in a Multilingual Society: Linguistic Patterns and the Road to Assessment* (2008-2013), in which framework the MAIN narrative tool was developed, or FREPY-project *Friendly Resources for Playful Speech Therapy* (2009-2011), which aims to elaborate upon picture materials for multilingual narratives. They show very clearly how laborious it is to create good, culturally independent stimuli, controlled for cognitive and pictorial complexity as well as for morpho-syntax and lexicon, that are useable in various countries in different languages. Such work is a product of long-term cooperation of researchers from many countries.

Picture stories based on a sequence of pictures can vary in the number of pictures and their complexity. They may present several protagonists who are introduced at a certain point and interact with each other at various narration points as well as different settings and time spans. Such picture sequences help to elicit a narrative, which is usually short, but long enough for establishing discourse coherence by means of different cohesive devices. They are needed for investigating reference in general and referential expressions in particular. A picture-based story gives enough linguistic, pragmatic, and cognitive information for analysis and is a very economic tool. As such, this type of narrative task is meanwhile used in various assessments, e.g., for assessing general linguistic development, differentiating typically developing (TD) children from children with (specific) language impairment ((S)LI), or for predicting future problems bound to literacy (e.g., The Renfrew Bus Story Language Screening by Narrative Recall, ENNI, MAIN, already cited above).

Picture-based stories can be used for elicitation of narratives with different techniques and methodologies. The way of presentation and task procedure play an important role in production and comprehension of a narrative. E.g., pictures can be presented all together, one by one, or in sequences, with oral support or without, with visual access to the pictures for both the child and the testing person (shared context) or without (non-shared context), with request to tell a story autonomously (story generation) or with request to retell the story (if previously told by somebody else), telling or retelling with picture support or without, etc. The methodologies and techniques are very diverse even with regard to one type of narrative task (some of them have been extensively studied, see Chapter 3) showing a vast diversity of elicitation methods in the narrative discourse. A detailed description of well-established techniques for different narrative tasks is provided by Hughes et al. (1997).

2.1.3 Analysis of narratives

Studying narrative discourse implies accounting for specific characteristics or elements of a narrative on the levels of *macrostructure* and *microstructure*. As described in Hughes et al. (1997), the analysis of *macrostructure* refers to the global analysis of the structure of a narrative, including the elements of a so-called *story grammar* and the analysis of the episodic structure, whereas the analysis of *microstructure* refers to the analysis of cohesive devices (including reference, connectives, etc.), grammatical units (number of units, length and sentence complexity), and lexical diversity (number of different words, number of tokens, etc.).

Story grammar was elaborated in the 1970's by different researchers. As stated in Schneider, Hayward, and Dubé (2006:225), "[t]he story grammar model describes the information that adults identify as essential to "good" stories, and that adults and older children typically include in their stories (Stein & Policastro, 1984)". Furthermore, the authors point out that there are different schemata of story organization (Mandler & Johnson 1977; Rumelhart 1975; Stein & Glenn 1979; Thorndyke 1977, as cited in Schneider, Hayward & Dubé 2006), however, all of them include the same basic elements, *story grammar units*: setting (story characters, location, time, activities), initiating event (including internal response and internal plan), attempt, outcome (including character reaction to the outcome). Elements reflecting mental states and feelings are often included into the story grammar model (cf. Hughes et al.1997 or Stein & Glenn 1979).

Recently, a complex multilayer approach to the analysis of narratives was elaborated in the framework of the Multilingual Assessment Instrument for Narratives (MAIN), already mentioned above (Gagarina et al. 2012).[7] It combines the analysis of three elements on the macrostructural level: story structure (based on the reduced model of story grammar), structural complexity of a story related to the episodic structure (with three levels of complexity: sequences, incomplete episodes, and complete episodes), and internal states with the analysis of linguistic elements related to discourse cohesion, grammatical units, syntactic complexity, lexical diversity, etc. on the microstructure level. In addition, bilingual phenomena such as code-switching and crosslinguistic transfer are taken into account. The authors of the tool emphasize that "MAIN includes a list of potential microstructural measures that have been found to be sensitive for the differential diagnosis of children with language impairment in different languages" (Gagarina et al. 2012:57). However, as the elements of the microstructure are highly language specific, the researchers suggest using a subset of proposed measures as well as additional measures, according to the needs of a particular language. MAIN targets both comprehension and production of narratives by children between 3 and 10 years old (or older) and can be used for both TD and SLI children. The instrument contains 4 stories, comparable in structure and narrative complexity. It is

[7] This instrument, developed in joint cooperation with researchers from many countries in the framework of the *COST-Action IS0804: Language Impairment in a Multilingual Society: Linguistic Patterns and the Road to Assessment* (2008-2013), is meanwhile used in more than 25 languages and can be adapted and implemented with other languages as well.

particularly useful for the narrative research on bilingual children, given that MAIN contains stories with parallel structures so that one story can be used in one language and another story in another language.[8]

Thus, the analysis of narratives is a complex task, which can be performed on different levels and target different domains. Referential expressions used for referring to discourse protagonists and for establishing referential cohesion are an essential part of the microstructure of a narrative and are indispensable for its overall structure. As already mentioned in the introduction, the use of referential expressions involves not only grammatical but also pragmatic constraints and the process of referential choice involves pragmatic as well as cognitive processes. The next section addresses some additional issues with the general use of reference in discourse, referential expressions, and referential choice, and provides a theoretical background for the analysis of referential expressions in discourse, in particular, in child narrative discourse.

2.2 Domain of reference

2.2.1 Referential devices

As was already pointed out in the introduction, different referential devices can be used in the discourse. These can be divided into two categories: *primary* and *subsidiary* using Kibrik's (2001) terminology. Primary devices are referential expressions themselves, including different types of noun phrases, pronouns, or zero forms.[9] Subsidiary devices are additional devices that help infer reference to a particular discourse referent. As described in Kibrik (2001:1130), these are "**conventional**, or lexico-grammatical, devices, like gender, and **ad hoc** devices, based on semantic compatibility with the clause context." Subsidiary devices play an important role in situations where there is a so-called *referential conflict*, e.g., when there are several discourse referents in question to which a given referential expression, e.g., a pronoun, could refer in a particular context. Such referential conflicts are often resolved with gender marking or semantic information in the sentence that gives an additional cue for allocating a correct referent. At the same time, often subsidiary devices cannot help, since the needed information might be missing or is not conclusive. Although the present work concentrates, in the first place, on primary devices, subsidiary devices might be considered in the analysis of referential expressions as well.

According to Kibrik (2001:1124), "an account of referential devices is an essential part of a full description of any language, as necessary as the inventory of tenses or the rules of

[8] At the time the present study was conducted, this instrument was not yet available.

[9] There are different terminologies with regard to the types of referential expressions, e.g., lexically full noun phrases vs. reduced noun phrases (Bergelson & Kibrik 1980), full vs. attenuated ones (Chafe 1994), strong vs. weak (Payne 1993), etc. (see Kibrik 2001 for detailed description and references). In the present work, I do not use any oppositions, but refer to the types of referential expressions in general terms (noun phrases, pronouns, etc.) or, if more precision is needed, as described in the referential systems of the analyzed languages (see Chapter 4 for the description of referential systems of Russian and German).

relative clause formation". Indeed, different languages might exhibit different sets of referential expressions. Comparing, for example, languages that belong to very distant language families, e.g., English and Japanese, we find that it is easy to assert that these languages might have a different repertoire of referential devices and thus that they might exhibit different referential devices for conveying information in the discourse. Moreover, in these languages the same types of referential expressions can be used in a different way, demonstrating language-specific referential strategies. In this respect, Clancy (1980) demonstrated in her study on English and Japanese adult narrative discourse that personal pronouns, which are very frequent for maintaining reference in different European languages, are not at all appropriate in Japanese narrative discourse, even though these forms exist in this language. Instead, only zero forms (ellipsis in Clancy's terms) are used for the same purpose.

However, in close languages the differences may be rather distinct as well. For example, in German and English, both West Germanic languages, the use of German personal pronouns *er/sie/es* is very different from English *he/she/it* due to the fact that English operates with natural gender, masculine and feminine, whereas German operates with grammatical gender in addition to natural gender, i.e., each word has an inherent gender, masculine, feminine, or neuter. Thus, the concept of the personal pronoun in these languages is different already at the grammatical level. Both languages exhibit article systems represented by definite and indefinite articles. However, they have different distribution and properties: in German, the articles vary according to number, gender, and case, whereas in English, there is no variation at all, and the forms are fixed. Children acquire articles early in both languages and, therefore, can use definite and indefinite noun phrases, which are two types of referential expressions. At the same time, for English-German bilingual children it is then necessary to account for these peculiarities in the course of acquisition of English and German as their L1 (first language) or L2 (second language). In addition, in English the category of gender is not marked through the article, as it is the case in German, which could lead to differences in the use of both articles and pronouns.

Another example can be made with regard to personal pronouns. In German, like in Russian, personal pronouns vary according to number, person, gender, and case, the same categories in both languages. When a child is able to use all different forms of personal pronouns, it could be said that she or he has acquired the personal pronoun paradigm and can use personal pronouns grammatically. However, German monolingual children use personal pronouns later than Russian monolinguals. This is because in German there is another type of pronoun, d-pronoun *der/die/das*, which is similar in function and is often used instead in child discourse (see more details in the description of Russian and German referential systems in Chapter 4). Such language-specific differences highlight the variation in the use of referential expressions across different languages.

Thus, in general, children can operate with different types of referential expressions from early on. As demonstrated in various studies, they can do it by the age of 3 or 4 (see Chapter 3 for the overview). However, in bilingual acquisition it might be different, especially in the

case of bilingual children who acquire one of their languages much later than the other. For example, a 4-year-old child who has been exposed to his or her L2 only for a couple of months will not use all types of referential expressions in the L2, due to the fact that the acquisition of linguistic forms requires some time. Moreover, bilingual children have to distinguish between two systems of reference and acquire all peculiarities of referential expressions in *both* of their languages. Therefore, the grammatical use of referential expressions is also a complex domain which should be accounted for while studying reference and referential choice, especially in bilingual children. Following this, the grammatical use of referential expressions in the analyzed languages is considered in detail in the present study. The description of the referential systems of Russian and German is presented in a separate chapter (Chapter 4).

At this point, a few words should be said about the concept of definiteness as it is essential for the use of referential expressions. Indeed, whereas some languages have overt grammatical markers for in/definiteness, e.g., through articles, other languages do not grammaticalize definiteness. The concept of definiteness has to do with the *identifiability* of referents – "the expression of whether or not a referent is familiar or already established in the discourse" (Kibort 2008:1) – and is central for reference and discourse organization. According to the interpretation given by Kibort (2008:1), who relies on Lambrecht (1994) and Lyons (1999), "the semantic-pragmatic concept of identifiability underlying grammatical definiteness is probably universal". Lyons puts the relationship between definiteness and identifiability as follows: "[i]n languages where identifiability is represented grammatically, this representation is definiteness; and definiteness is likely to express identifiability prototypically" (Lyons 1999:278). It does not mean, however, that identifiability can be expressed only through definiteness. In Mandarin Chinese, for example, a noun phrase in subject position (a subject of the sentence) must be a topic and, therefore, definite, whereas a noun phrase in the existential construction must be understood as indefinite (Kibort 2008:1).

According to Leiss (2000:267), definiteness is coded, on the one hand, through grammatical devices and thus realized as a grammatical category, on the other hand, through semantic-pragmatic coding. Some researchers claim that definiteness as grammatical category is indispensable in languages which do not have an overt marking of definiteness as well and that those languages use other grammatical devices for expressing definiteness instead, e.g., word order variations (see Bunčić 2014 for discussion and references).

In this context, a few words should also be said about topic**.** Leaving aside the vivid discussion on the notion of topic, mainly because this notion is used in different frameworks and defined differently (for discussion see, e.g., Klein 2008; Krifka 2007; Krifka & Musan 2012; Lambrecht 1994; von Stutterheim & Klein 1989), the general approach to topic is that it falls within the scope of pragmatic presupposition and that it is related to *aboutness* (Strawson 1964; Reinhart 1982), designating the entity about which information is given. In the discourse, "a referent is interpreted as the topic of a proposition if *in a given discourse*

the proposition is construed as being *about* this referent, i.e., as expressing information which is *relevant to* and which increases the addressee's *knowledge of* this referent", as stated in Lambrecht (1994:127). Thus, in general, discourse referents about which information is given can be considered topics or topical.

Another important aspect of topic is related to its uniqueness vs. multiplicity in a proposition. Whereas Reinhart (1982), for example, argues explicitly for topic uniqueness, other researchers, e.g., Givón (1990), Lambrecht (1994), Nikolaeva (2001), Vallduví (1992), argue for a possibility of multiple topics in a sentence dividing them into *primary* and *secondary* topics. Primary and secondary topics should stand in relation to each other. As stated by Lambrecht (1994:148), "a sentence containing two (or more) topics, in addition to conveying information about the topic referents, conveys information about the relation that holds between them as arguments in the proposition". They are mostly encoded as a subject (primary topic) and as an object (secondary topic).[10] In the present study, multiple topics are accounted for and discourse referents in child narrative discourse are coded with respect to their topicality in the sentence, among other parameters.

In many languages it is possible to mark topicality of a referent by grammatical or pragmatic means, such as fixed sentence position, word order variations, topicalization, morphological marking, passive constructions, topic-drop, etc. As described in Murcia-Serra (2003:290-291),

> *"[i]n languages with a more flexible constituent order, a topic entity is basically coded by exploiting such a flexibility, typically through left-detachment, independently of whether it concerns a subject or an object constituent, an agent or a patient argument. … Topicality is marked in these languages via constituent order as opposed to a specific grammatical category, but the subject category still maintains a privileged function for the coding of topical information since it can be placed in a topical position in the utterance and allows minimal reference by using zero anaphora (especially in the case of pro-drop languages thanks to agreement marking on the verb)."*

In addition, topics can be marked prosodically. They are usually de-accentuated in contrast to elements which are in focus. Prosody can generally be used as a reliable criterion for encoding and distinguishing topic-focus property of a referent, but it is not the case for young children, as they do not seem to muster adult-like prosody at the preschool age (Chen 2007). Moreover, it was shown in several studies that even 5-year-old children are not very sensitive to contrastive stress in co-referential pronouns, e.g., in the study of Maratsos (1973). It was also shown that prosody strongly correlates with children's ability to interpret pronouns, as was shown by McDaniel and Maxfield (1992), who investigated performance on Principle B in children between 3 and 6;10 years old (Avrutin 1999:78-79). Given that the present study deals with discourse referents in narrative discourse of children aged 4 to 6, prosody is not taken into account for identifying topics.

[10] It is also possible to encode topical patients as subjects via passive constructions in order to keep the primary topic as subject or topicalize the object by moving it to the sentence-initial position.

2.2.2 Factors influencing referential choice

As already stated in the introduction, referential choice is the choice made by a speaker when a discourse referent needs to be mentioned in the discourse. The choice of an appropriate referential expression at a certain point of the discourse might depend on many factors, bound to grammatical and pragmatic domains. From the grammatical point of view, it is, in the first place, an available set of referential expressions in a given language and their grammatical realization, which is tightly bound to the morphosyntactic structure of the language. From the pragmatic point of view, these could be different factors, e.g., type of discourse, the information status of a referent, degree of accessibility and cognitive activation, antecedence, a number of concurring referents in the given context, etc. Such factors can be called discourse internal, as they are based on the discourse itself. Clancy (1992) highlighted three factors which might influence referential choice: (a) the discourse context in which the reference occurs, (b) the importance of the referent in the discourse, and (c) the genre or type of discourse in question, which in a way summarizes the factors presented above. All these factors may influence referential choice to a different degree. Some of them are addressed in more detail in the next section, which gives a short overview of the current theories and selected theories that serve as a basis for the present work.

Referential choice made by a particular speaker and referential strategies in general may, however, also depend on discourse-external factors, e.g., age of the speaker, his or her length of exposure to the language, especially when it concerns different types of bilingualism, social, cultural, and educational background, input, etc. These are all bound to the extralinguistic level and are speaker related. In particular, age and length of exposure to a language are taken into account as discourse-external factors in the present study since the study investigates narratives of monolingual and bilingual children in different age groups.

Beside the factors already presented above, in the analysis of discourse, and referential choice in particular, two different views of discourse can be adopted: the *speaker's perspective* or *the listener's perspective*. In the first case, the discourse is seen through the eyes of the speaker, so to say, accounting for the speaker's strategies to maintain reference by using appropriate referential expressions. In the second case, the discourse is seen through the eyes of the listener, and one would speak about reference-tracking procedures that allow the listener to keep track of referents throughout the discourse and be able to clearly identify them when they are mentioned by means of different referential expressions (Kibrik 2001). Often one or the other view is clearly reflected in theoretical approaches to referential choice (see next section for the overview of theories).

Especially in the narrative discourse, where the interaction between discourse participants is minimal – one is telling a story and the other is listening, – the narration needs to be as clear as possible so that the listener can follow and understand the story. In this respect, referential choice in the narrative discourse is a good indicator for the speaker's ability to take the perspective of the listener into account. If discourse referents are properly introduced and easily traceable by the listener due to reference by appropriate referential

expressions, this speaks in favour of a good ability to tell a story while taking into account the listener's perspective and the fact that the listener might not share the same knowledge with the speaker. However, as described in Tedeschi (2007b:202-203) with respect to child discourse, "at early stages, children may ignore the distinction between discourse-related and non-discourse related referentiality. The reason for this would be that at this stage they lack a particular pragmatic rule, the Concept of Non-Shared Knowledge (Schaeffer 2000). Children do not always realize that speaker and hearer knowledge are distinct entities". Indeed, it has been repeatedly shown in different studies that in the narrative discourse young children still rarely take the perspective of the listener into account, concentrating more on their own perception of the story and discourse (Kail & Hickmann 1992; Serratrice 2008, see also the overview in Chapter 3). Naturally, these pragmatic rules must be acquired as well.

Thus, overall, while studying referential choice, especially in the child narrative discourse, various aspects should be taken into account (see the overview of studies on different aspects of reference and referential choice in the discourse of monolingual and bilingual children in Chapter 3). However, it should be noted that in the framework of a single study it is not possible to incorporate the whole variety of discourse aspects. The present study is not an exception. It focuses on selected aspects of referential choice: the grammatical use of referential expressions referring to linguistic forms of referential expressions proper to the analyzed languages and their general distribution as well as their pragmatic use with regard to the information status of discourse referents and their degree of accessibility (see next section for the theoretical basis). The research questions and hypotheses with respect to these aspects are formulated in Chapter 5.

2.2.3 Theoretical approaches to referential choice

There are many ways to analyze pragmatic constraints of discourse and reference. In linguistics, various approaches, theories, or models deal specifically with referential choice and reference resolution. The most common (but not exclusive) theories and models in this respect are the *activation and identifiability statuses* of Chafe (1976, 1987, 1994*),* the *topic continuity, or accessibility approach,* of Givón (1983), *the familiarity scale* of Prince (1981, 1992), the *Accessibility Marking Scale* of Ariel (1988, 1990, 1994), the *Praguian Model of Salience* (Hajičová et al. 1990; Hajičová 1993), the *cognitive statuses,* or the *Givenness Hierarchy,* of Gundel, Hedberg, and Zacharski (1993), the *Centering Theory* of Grosz, Joshi, and Weinstein (1995), the *degrees of identifiability and activation* of Lambrecht (1994), or the *cognitive multifactorial model of reference* proposed by Kibrik (1996, 1999, 2000), among many others.[11] Each theory emphasized different aspects of referential choice and specified features valid for the discourse in general or for a particular type of discourse since discourse constraints depend to a considerable degree on the type of discourse.

[11] The order of the mentioned theories/models is purely chronological.

A number of researchers have investigated specifically *topic continuity* or *accessibility*[12] in the discourse (Ariel 1988, 1990, 1994; Fox 1987; Givón 1983, 1988, 1989; Tomlin 1987; inter al.). These notions were first introduced by Givón, who "postulated an important iconicity principle: the more continuous/accessible a topic (i.e., referent) is, the less linguistic material is used to code it (that is pronouns and zero expressions); and vice versa, discontinuous/inaccessible referents require heavier coding (full NPs) (1983:17-18)" (Kibrik 2001:1127-1128). A similar approach was proposed, e.g., by Ariel (1988, 1990, 1994) in the Accessibility Marking Scale, which gives an overview of referring expressions, from the most unmarked linguistic expressions (e.g., zero or clitics), which are at the same time the most accessible elements in the discourse, to the most marked ones (e.g., distal demonstrative or definite nominal phrases), which are the least accessible in the discourse.

One of the main basic theoretical assumptions taken into account here is that referential choice is cognitively determined (among other factors) by different *degrees of accessibility* of a referent (Ariel 1994; Chafe 1987, 1994; Givón 1983; Lambrecht 1994; Van Hoek 1997; inter al.), i.e., types of referential expressions chosen for referring to discourse referents depend on the degree of accessibility of these particular referents at a specific point in the discourse. The accessibility of a referent was generally defined in terms of cognitive activation and "is ultimately related to the state of the speaker's and/or addressee's knowledge and mind in general" (Kibrik 2001:1127). However, degrees of accessibility are represented rather differently in different models, from Givón's postulated iconicity between the accessibility and the linguistic form of a referent to a very elaborated scale where each type of referential expression corresponds to a specific cognitive state as, e.g., in Gundel et al.'s Givenness Hierarchy.

It should be noted that many theories are difficult to apply to *child* narrative discourse. One of the reasons is that they are based on assumptions bound to *adult* discourse, whereas children have not yet acquired all pragmatic constraints of discourse organization. Children's discourse is in many ways different from the adult one with regard to reference: it is less differentiated and less structured and systematic from the pragmatic point of view, even though children dispose of the same grammatical requisite beginning from a certain stage of their linguistic development. At the same time, children show sensitivity to the informational needs of their interlocutors from early on and hence try to apply this knowledge in their own discourse to a certain degree, e.g., using nominal devices for introducing discourse referents and pronominal devices for maintaining reference (see more in the overview of studies in Chapter 3).

In order to investigate child narrative discourse, a theoretical framework should be applicable both for the particular type of discourse and for the investigated target groups, e.g., children in the specific age range, as in the case of the present study. In addition, the

[12] The term *accessibility* can be used in different contexts, and it can refer to different concepts. It can indicate, for example, the relation between a referent and a respective referential expression or can refer to a structural property of a discourse segment (see von Heusinger 2000). In the present work, this term is used only in the sense of the relation between a referent and a respective referential expression, staying on the discourse-internal level.

theoretical framework should be suitable for the investigated languages, in the present case, Russian and German. Naturally, it should fulfil the needs of the investigation as well. For example, it would be less effective to investigate the narrative discourse in Russian children in the framework of Gundel et al.'s Givenness Hierarchy, as this model is strongly oriented towards English language. An additional reason is that the clear correspondence between different cognitive states and types of referential expressions gets lost in Russian due to differences in the referential system. An attempt to apply this model to Russian and German child narrative discourse has already been made, e.g., in Gülzow and Gagarina (2007), with similar conclusions. Therefore, fine-grained theoretical frameworks are not always the best choice for a particular analysis, and it is better, in that case, to focus on those models which refer to a more basic approach to reference and referential choice.

Picture-based narratives often have several characters that are introduced one after another or simultaneously and interact in the course of the story. Thus, discourse referents should be introduced, maintained throughout the story, and reintroduced (if needed), depending on narrative strategies and story plot, e.g., when referents were introduced but not maintained due to episodic or topic shift, introduction of new characters, etc. The produced stories are usually rather short and concentrate on the immediate content of the story without referring to concepts or referents outside of the discourse, i.e., concepts reflecting the world knowledge or dealing with situational context, as is often the case in conversations or in written discourse.

An approach presented in Chafe (1987, 1994) seems to be applicable to the type of discourse investigated in the present study. It provides a necessary prerequisite for understanding how information is conveyed in this type of discourse and for determining the relations between discourse referents and types of referential expressions used for referring to them in the narrative.[13] According to Chafe, "the conveying of information in natural languages not only involves knowledge but also consciousness" (Lambrecht 1994:93). Chafe (1987:25) operates with three states of cognitive activation, active, semi-active, and inactive:

> *"An active concept is one that is currently lit up, a concept in a person's focus of consciousness. A semi-active concept is one that is in a person's peripheral consciousness, a concept of which a person has a background awareness, but which is not being directly focused on. An inactive concept is one that is currently in a person's long-time memory, neither focally nor peripherally active".* [14]

Thus, each discourse referent can be defined in terms of activation states as active, semi-active, or inactive at each point in the discourse.

Kibrik (1996:256), analyzing anaphora in the framework of his cognitive model, also argues that "[t]he main prerequisite for the speaker's using an anaphoric pronoun is

[13] Chafe pointed out that principles discussed in his approach can be applied to a majority of discourse types based on a spontaneous spoken language. At the same time he admitted that they can be "considerably modified in written language (and to a lesser extend in more formal kinds of spoken language) by a greater freedom from ongoing cognitive constraints" (Chafe 1987:50).

[14] Lambrecht (1994) prefers to use the term *"mental representations of referents"* referring to what Chafe calls *concepts* here.

activation of the referent in question. That is, the speaker needs to have the referent in his/her active memory by the beginning of the current discourse unit. Moreover, s/he needs to believe that the referent is in the active memory of the addressee." He also states that

> *"the previous text plays a major role in determining the referents' pronominalizability but does that through mediation of the cognitive activation structures rather than directly. At every moment of discourse production, factors of activation work in the speaker's mind (of course independently of his/her consciousness) and determine an activation level for each referent. If the speaker needs to mention a referent, and the activation level for this referent is high enough, an anaphoric pronoun can be used. If not, then a full NP has to be used.*
> *Therefore, previous discourse influences the state of the active memory, and active memory in its turn determines the pronominalizability of referents."* (Kibrik 1996:257-258)[15]

At the same time, each discourse referent has an information status at each point of the discourse, and the information status of a referent varies according to the degree of accessibility of the referent. The natural consequence would thus be to relate cognitive states to information statuses.

The information status of a referent is generally classified as either *new* or *old* (or *new* vs. g*iven*) information (Steedman, 2000; Vallduví, 1992; inter al.) and can be considered as one of the major factors influencing referential choice. This distinction has been applied in many studies, including the studies on narrative discourse where first mentions as opposed to subsequent mentions of discourse referents were investigated, which would match *new* and *given* information status respectively. At the same time, not all subsequent mentions are continuously maintained through the discourse, especially in a type of narrative discourse with several protagonists interacting with each other. In narratives, referents need to be not only introduced and maintained but also reintroduced into the narration. According to the new/given distinction, the reintroduced referents should have the information status *given,* since they were previously introduced into the narration. This would mean that they should be treated exactly in the same way as maintained referents. This, however, is not the case, at least in terms of referential choice, as the types and distribution of referential expressions used for maintaining and reintroducing discourse referents are quite different (overt pronominal and zero forms for maintaining and definite nominal expressions for reintroducing referents). Thus, the differentiation only between *new* and *given* information status seems to be too limited for justifying the referential choice for reintroducing referents. An additional distinction is needed for differentiating between referential expressions used for maintaining discourse referents and for reintroducing them.

The term *accessible* in relation to information status was proposed by Chafe himself with regard to semi-activated referents: "I will introduce the notion of "accessible" or "previously semi-active" information as a third type, which is in a sense intermediate between given and

[15] In Kibrik's approach, additional factors such as animacy and protagonisthood of a referent have to be accounted for, which he calls "stable properties of a referent" (Kibrik 1996:256-258).

new" (Chafe 1987:22)[16]. He established the relation between all three cognitive activation states and information statuses: inactive –> new, active –> given, semi-active –> accessible. According to Chafe, there are two ways for concepts to become semi-active or accessible:

> *"One way is through deactivation from an earlier active state, typically through having been active at an earlier point in the discourse. A concept does not remain in the active state very long unless its activation is refreshed. But as concepts become deactivated they do not immediately become fully inactive, but may remain in the semi-active state for some time. … The other way in which concepts may become semi-active is … belong[ing] to the set of expectations associated with a schema. … A schema is usefully regarded as a cluster of interrelated expectations. When a schema has been evoked in a narrative, some if not all of the expectations of which it is constituted presumably enter the semi-active state. From that point on, they are more accessible to recall than they would have been as inactive concepts."* (Chafe 1987:29)[17]

In addition to the two types of accessible concepts just presented above, Lambrecht (1994) proposed to extend the information status accessible to referents which are accessible "due to their presence in the text-external world" (Lambrecht 1994:99). According to him, "[a]ccessibility (semi-activeness) of a referent can be thus ascribed to three factors: deactivation from an earlier state, inference from a cognitive schema or frame, or presence in the text-external world" (Lambrecht 1994:100). He proposes to call these types of accessibility *textually accessible, inferentially accessible,* and *situationally accessible* respectively.[18]

For the type of narrative discourse investigated in the present study, the first type of semi-active or accessible concepts is especially important as it allows for distinguishing previously mentioned discourse referents from given referents that have a higher degree of cognitive activation and from new referents that were previously inactive at the discourse level. This categorization of new, given, and accessible referents should not be confused with other classifications where the term *accessible,* also named *inferable,* or *mediated* (depending on the framework), refers to the information which was not previously mentioned in the discourse but is accessible to the hearer either through world knowledge or inference from the discourse situation (cf. Götze et al. 2007; Nissim et al. 2004; Prince 1981, 1992; Riester, Lorenz, & Seemann 2010).

For example, for the crosslinguistic annotation of information status in different types of discourse described in Götze et al. (2007), three main categories – new, given, and accessible, – are used along with several subcategories for given and accessible information

[16] Lambrecht (1994:348) indicates that the notion "accessible (semi-active)" introduced by Chafe is closely related to the notion of "evoked" in Lambrecht 1981 (following Prince 1979) and "recoverable" in Lambrecht 1987. In the present work, Chafe's terminology is used.

[17] An example for a schema given by Chafe is an undergraduate class. The schema includes such concepts as students, an instructor, teaching assistants, a classroom, a lecture, etc. These concepts "must then have been in the semi-active state throughout the narrative, except during the periods when they were fully active" (Chafe 1987:30). In this sense such concepts are comparable with inferable entities in Prince's framework (Prince 1981, 1992).

[18] In this sense, Lambrecht's terms have much in common with Prince's notions of inferable and evoked familiarity (1981, 1992). Note, however, that the overall classification is different in each framework.

statuses. Interestingly, whereas all subcategories of *accessible* refer to "some kind of relational information, the situative context or the assumed world knowledge of the hearer" (Götze et al. 2007:157), the subcategories of *given,* named *given-active* and *given-inactive,* reflect exactly the *given* and *accessible* (textually deactivated) statuses respectively in Chafe's terminology. This would mean, however, that if only main categories are annotated (which is perfectly acceptable according to the annotation guidelines), the differentiation between given-active and given-inactive (or given and accessible as postulated by Chafe) would disappear. Yet it is exactly this differentiation that seems to play an essential role in appropriate referential choice.

Following Chafe (1987), I therefore argue that an additional status *accessible* (referring to semi-active concepts being active at an earlier point of the discourse) is absolutely necessary. This is because the need to *reintroduce* referents into the discourse arises exactly due to the fact that they are accessible to both the speaker and the listener, having been previously introduced into the discourse and still cognitively activated, or semi-activated in Chafe's terms. They cannot however be treated in the same way as *given* referents, as their activation was not continuously maintained. The classification of information statuses relating information statuses to cognitive activation states proposed by Chafe (1987) best suits the investigated type of child discourse and could be applied to both investigated languages, Russian and German. Therefore, for the analysis of referential choice in children's picture-based narratives in the framework of the present study, the pragmatic use of referential expressions is defined by taking into account the *information status* of the referent based on the three-part classification: *new*, *given,* and *accessible*.

The next step is to measure the degree of accessibility of each referent. Among other procedures, it can be measured by taking into account the referential distance, e.g., the distance between the given referential expression and its antecedent, whereupon in different frameworks it was distinguished between linear and hierarchical distances as well as between different measurement procedures (cf. Ariel 1988; Clancy 1980; Fox 1987; Givón 1983; inter al.). For the discourse type analyzed in the framework of the present study, picture-based narratives, measuring linear (not hierarchical) distance is more adequate since the stories told by children are built up linearly rather than hierarchically, with sequential organization of the story line and more or less transparent syntactic structures.

Linear referential distance to the antecedent can be measured by the number of clauses or sentences between a given referential expression and its antecedent. Clancy (1980) and Givón (1983a) were the first to successfully apply this approach. It was assumed that "[i]f the referent was mentioned one or two clauses back, it is likely to be highly accessible or activated and, as a consequence, to be referred to by a reduced expression" (Kibrik 2001:1128), e.g., by a personal or zero pronoun. Other researchers also used sentences (Ariel 1988) or propositions (Fox 1987) to measure linear or hierarchical distance respectively. However, analysis based on clauses allows for accounting of referential choice within the same sentence containing coordinate or subordinate clauses. The choice of an appropriate referential expression often also depends on the syntactic constraints, e.g., the

use of zero pronouns in the coordinate clause with co-referential subjects. In addition, accounting for clauses allows for better comparison between languages with morpho-syntactic differences, e.g., Russian and German, where the use of zero pronouns is determined by different grammatical constraints.

Based on the theoretical background presented above, the information statuses of discourse referents are thus defined with regard to the degree of cognitive activation and referential distance to the antecedent as follows:

- if the entity was previously unmentioned and is therefore inactive in the listener's consciousness, the information status is *new*;
- if it was already mentioned and continuously maintained, i.e., mentioned in the previous clause, and is therefore highly activated, it is defined as *given*;
- if it was previously mentioned but not continuously maintained, i.e., not mentioned in the previous clause (but mentioned in the second or more clauses back), and is therefore semi-activated, it is defined as *accessible*.

This three-part classification allows for a more differentiated analysis of referential choice in child narrative discourse. Such classification can reveal how strong the impact of the referent's information status is on referential choice. Additionally, it can account for the difference between *given* and *accessible* referents. Meanwhile, it is well known that even very young children can operate with different kinds of information and distinguish between *new* and *old (given)* information from early on, both in perception and production, although they do not yet do it systematically (see the overview of studies in Chapter 3). In the framework of the present study, it is not only children's ability to introduce and maintain discourse referents is investigated but also their ability to reintroduce discourse referents, and, as a consequence, their ability to account for the informational needs of the listener throughout the whole narration. The research questions and hypotheses with respect to the pragmatic use of referential expressions based on the proposed classification are formulated in Chapter 5.

2.3 Domain of child bilingualism

This section gives a short overview of the classifications of types of child bilingualism, different hypotheses about bilingual language acquisition as well as the impact of bilingualism on language acquisition and development. What is essential for the present work is the differentiation between types of bilinguals who acquire two languages during childhood from the acquisitional and developmental perspective. Therefore, the focus is on the age of onset (AoO) of the second language (L2) and its role in the type of language acquisition for child bilinguals. Other classifications of bilingualism based on societal, cultural, or educational aspects were not considered. Extensive overviews of these aspects of bilingualism can be found, among others, in Hamers and Blanc (2000), Pearson (2009), Valdés and Figueroa (1994).

2.3.1 Classification of bilingual types in children

Classification based on age of onset of the second language

Research on bilingualism has traditionally differentiated between *simultaneous* and *sequential*[19] bilinguals (cf. De Houwer 1990, 1995; Deuchar and Quay 2000; Genesee & Nicoladis 2007; Hamers & Blanc 2000; Paradis 2007; Pearson 2009; Romaine 1995; inter al.), based on *the starting point of exposure,* or *the age of onset (AoO*): simultaneous bilinguals are exposed to both languages from birth or shortly afterwards, whereas sequential bilinguals are exposed to the first language (L1) from birth and later on to the second language (L2). However, the AoO of the L2 and the age boundaries between simultaneous and sequential bilinguals are determined in various ways. As such, they remain controversial issues in bilingual research. For example, De Houwer (1990, 1995) argues that children who start L2 acquisition just several weeks after birth should already be treated as sequential bilinguals (and not simultaneous bilinguals); Deuchar and Quay (2000) stipulate onset of the second language anytime within the first year of life as acceptable as simultaneous bilingualism (Yip 2013:120).

Language acquisition is not punctual but lasts several years. For bilinguals, the acquisition of one language and another may coincide, partly overlap or not overlap at all, depending on the AoO of the L2. Bilingual language acquisition can therefore also be seen in this way: as long as both languages are acquired simultaneously, e.g., in the first two-three years of life, one can speak of simultaneous language acquisition, whereas sequential language acquisition can be understood as acquiring L2 after the basics of the L1 have already been acquired. In this sense, several researchers (e.g., De Houwer 2009 in contrast to her earlier research; Ruberg 2013; Tracy 2007; Tracy & Gawlitzek-Maiwald 2000) suggest that those bilingual children who are exposed to an L2 after age 2 acquire their languages sequentially; before this age one can assume simultaneous acquisition of the two languages. Other researchers postulate the onset of sequential bilingual acquisition around age 3, when the basic syntactic and morphological rules of the first language have already been acquired (cf. Chilla 2011; Kauschke 2012; McLaughlin 1984; Paradis 2008; Paradis, Genesee, & Crago 2011; inter al.). At the same time, Unsworth (2005:6, after Lakshmanan 1995:322) points out that, in terms of general language acquisition, “this is probably too early, given that not all complex properties of language have been acquired by this age”. Thus, she suggests the age demarcation between simultaneous and sequential language acquisition to be at age 4[20]. The same age demarcation was proposed by Genesee and Nicoladis (2007). Genesee (1989) even proposed it to be at age 5.

[19] In the literature, this type of bilingualism is also referred to as *successive,* or *consecutive*. In the present work, the term *sequential* is used to refer to this type of bilingualism in general, but occasionally other terms are used when referring to or citing the respective literature.

[20] As argued by Unsworth (2005:6), at age 4 “we can assume most (purely) grammatical principles (and, for example, the phonology) of the first language to be in place (e.g., Goodluck 1986; Guasti 2002)”.

As was noted by many researchers cited above, the age demarcation is not fixed. Moreover, the age range proposed by different researchers for distinguishing between simultaneous and sequential bilingual is so wide that the dichotomic division between simultaneous and sequential language acquisition remains problematic. Furthermore, this demarcation says nothing about when sequential language acquisition ends, i.e., from the AoO perspective, people who started to acquire an L2 during adulthood could also be considered as sequential bilinguals.

Recent research on bilinguals (cf. Chilla 2011; Paradis 2008; Pearson 2009; Ruberg 2013) therefore proposes an additional distinction between *early* and *late sequential bilinguals.* Paradis (2008:1), for example, defines early sequential bilingual children as those "whose L2 onset began after the birth to age 3;0 period, but before 6;0". Chilla (2011) also differentiates between simultaneous, early sequential, and late sequential bilingual acquisition. According to her, early sequential acquisition starts between age 3 and 4. Pearson (2009:382) speaks about early sequential bilinguals as those who start to acquire an L2 before age of 7 or 9. The main reason for the additional distinction stems, most probably, from the observation that bilingual children acquiring an L2 from early on, but not in the first two-three years of life, are different from older sequential bilinguals and at the same time in many ways similar to simultaneous bilinguals with regard to their acquisitional path. The acquisitional paths attributed to simultaneous, early sequential, and late sequential bilinguals as well as current classifications based on this parameter are presented in the next section in more detail.

Classification based on type of language acquisition

Another way to look at bilingual language acquisition is to classify bilinguals according to *the type* of language acquisition. Do bilingual children acquire languages in the same way as monolingual children? Are there differences between simultaneous and sequential bilingual children from the point of view of language acquisition? How does the AoO influence the course of L2 acquisition? These or similar questions are often addressed in acquisitional bilingual research. In this respect, researchers (e.g., De Houwer 1995, 2009; Meisel 2004, 2008, 2010; Paradis 2007; 2008; Ruberg 2013; Schwartz 2004; Tracy 2007; Unsworth 2005; inter al.) operate with the terms *bilingual first language acquisition (2L1)* vs. *child second language acquisition (cL2)* and *adult second language acquisition (aL2)*[21].

It is widely accepted that simultaneous bilinguals acquiring both languages from birth follow the L1 acquisition path (cf. Chilla 2011; De Houwer 1995; Kauschke 2012; Meisel 2008, 2010; Paradis et al. 2011; Tracy 2007; Tracy & Gawlitzek-Maiwald 2000). Furthermore, simultaneous bilingual children who acquire both languages from early on do not show any significant differences when compared to monolingual children (Chilla 2011:46,

[21] These abbreviations will be used throughout the text following Meisel (2004, 2008, 2010). Note that there are other common abbreviations, which can be found in the literature, e.g., BFLA for bilingual first language acquisition and BSLA for bilingual second language acquisition (e.g., in De Houwer 1990; 1995; 2009; Genesee & Nicoladis 2007).

as cited in Kauschke 2012:121). But what about sequential bilinguals? The question is not so trivial. The additional distinction between early and late sequential bilinguals seems to be very useful for bringing in line the classifications based on time and type of language acquisition: at first glance, whereas simultaneous bilinguals seem to follow the 2L1 path of acquisition, early sequential bilinguals seem to follow the cL2 path of acquisition and late sequential bilinguals – aL2 path of acquisition. Again, this is a complex issue.

According to Meisel (2008:59), the age boundaries for the different types of bilingual language acquisition are proposed to be as follows:

- 2L1 – for children whose exposure to L2 started prior to age 3;
- cL2 – with onset of L2 around age 3-4[22] until 7;
- aL2 – with onset of L2 around age 8.

Schwartz (2004) also proposes age ranges between 4 and 7 for cL2 path of acquisition and "understands cL2 as bridging a gap between L1 and aL2 acquisition" (Meisel 2010:237). Chilla (2011), who distinguishes between early and late sequential bilinguals, suggests that the cL2 acquisition (which applies to late sequential bilinguals) starts between age 5 and 10; this distinction may be important because early sequential acquisition may be more similar to 2L1 than late sequential acquisition (Kauschke 2012:121). As described by Rösch (2011:13), early child second language acquisition, starting between age 3 and 6, seems to be a mixed form of first and second language acquisition. In Pearson (2009:382), it is stated that "in the real world, within four or five years of starting the second language the 'early sequential bilingual' is indistinguishable from the native speaker". According to her, after the AoO around age 10 language acquisition follows the course of aL2 acquisition.

Summarizing these proposals, a more elaborated classification may comprise 4 different types of language acquisition: 2L1, early cL2, late cL2, and aL2. A narrower classification, on the other hand, does not differentiate between early and late cL2 acquisition, treating them as one category. Rösch (2011:11), for example, gives an overview of bilingual acquisition types in a quadrinomial classification:

- bilingual first language acquisition (AoO between 0-3);
- early child second language acquisition (AoO 3-6);
- child second language acquisition (AoO between 6-12);
- adult second language acquisition (after puberty).

Ruberg (2013:182) also uses 4 categories for describing language acquisition for bilingual children:

- simultaneous bilingual acquisition with AoO between 0-1;11;

[22] In one of his later works, Meisel (2011:206) defines the AoO for cL2 acquisition even more precisely, setting it between 3;6 and 4.

- sequential bilingual acquisition with AoO between 2;0-3;11;
- child second language acquisition with AoO between 4;0-9;11;
- adult second language acquisition with AoO at 10;0 or later.

The age range given for sequential acquisition in this classification suggests that it should correspond, most probably, to early sequential bilingual acquisition. However, this classification is in some ways misleading because it combines terms used for indicating the time of acquisition (based on AoO) and those used for indicating the type of acquisition.

The differences in age ranges proposed by researchers are often based on observations of acquisitional processes in different linguistic domains in various languages as well as on the interpretation of research findings. Taking the AoO between 2 and 6 as an example (being one of the most controversial age ranges in terms of language acquisition), the obtained evidence leads to the conclusion that the AoO within this age range cannot be strictly attributed to the 2L1 path of acquisition or the cL2 path of acquisition. As outlined by Rothweiler (2009:75), there are at least three different views on early sequential language acquisition:

> *"Schwartz (2004), for example, proposes that L2 children acquire morphology like L1 learners while syntactic structures are acquired L2-like. Meisel (2008), on the other hand, suggests that the inflectional morphology is affected earlier than syntax by changes in acquisition mechanisms. Blom et al (2006) – to mention a third view – claim that syntax is (2)L1-like in child L2, but morphology is different from both L1 and L2".*

Interesting evidence has also been provided by Meisel (2010). He refers, among other things, to his findings on the acquisition of morphology (finite verb and grammatical gender) in German-French bilingual children. These children started L2 French around the age of 3, which suggests that "it is precisely in the morphological domain in which cL2 resembles aL2 and where it is distinct from (2)L1" (Meisel 2010:239, see also Meisel 2009 for gender). Paradis (2008), on the other hand, compared simultaneous and early sequential bilinguals who started to acquire L2 English at about 3;7 and found important differences between these types of bilinguals in the domains of productive morphology and lexicon as well as in well-formedness judgements of morphology. At the same time, she pointed out that, although simultaneous bilinguals were better in productive morphology, early sequential bilinguals were better in vocabulary tasks (despite shorter exposure to the L2), and that both groups of bilingual children were comparable or even better than monolingual children in well-formedness judgements of morphology.

Hence, the most recent classifications of bilingual types also do not fully reflect the real situation in bilingual acquisition, given the diversity of opinions and research findings, in addition to many open questions concerning bilingual language acquisition at earlier stages. Children whose age of L2 onset is below age 3 but who are not exposed to the L2 from birth are still underrepresented in the bilingual research. According to Meisel (2008:73), it is very possible that certain phenomena in successive language acquisition may also occur at an earlier age, so that this type of bilingual acquisition may already be differentiated earlier from

2L1 acquisition than assumed nowadays. Much research and more evidence in different languages is needed to confirm or adjust the proposed age boundaries. Additionally, beside the age of onset (postulated as a crucial factor for language acquisition), other factors should be taken into account as well, e.g., previously acquired linguistic knowledge, the linguistic environment of bilingual children (quality and quantity of input in both languages), possible crosslinguistic influence (inter alia depending on the combination of languages), etc. These factors are shortly addressed in the discussion of the Critical Period Hypothesis in the next section.

In summary, the above-mentioned classifications of child bilingualism based on age of L2 onset or type of language acquisition remain problematic. As proposed by Pearson (2009:382), "'childhood bilingual' would be the general term for one who learned two languages natively before age 9, with the caution that the boundary between early and late is porous". Considering the classifications given above and the age ranges for different types of bilinguals, not even this statement can be taken for granted as setting the age limit for child bilinguals under 9 years is also debatable. The discrepancies in age range boundaries for the 2L1, cL2, and aL2 acquisition paths are tightly related to the discussion of different language acquisition hypotheses, including language processing and development hypotheses as well as critical, or sensitive, period hypotheses. For more clarity, they are presented in a separate subsection.

2.3.2 Bilingual language acquisition hypotheses

In the bilingual research, various hypotheses related to language processing and development, different acquisitional paths, or maturational processes have been proposed. The most important ones are presented below.

In the domain of *simultaneous* bilingual language acquisition, two major hypotheses were discussed: *The Unitary Language System Hypothesis* (Volterra & Taeschner 1978; Taeschner 1983) and *The Dual Language System Hypothesis* (Genesee 1989). Following the Unitary Language System Hypothesis, it was assumed that children who acquire two languages simultaneously are at first confused by bilingual input, unable at the very beginning to separate the languages. A three-stage-model was proposed:

- At the first stage of language development, children have one unitary language system for both languages. This stage lasts about 3 years;
- At the second stage children are able to separate their language-specific vocabularies but not the grammar;
- At the third stage children are able to differentiate between the grammatical systems of their languages and can, therefore, control language production (have full control over language production).

This interpretation was based on occasional evidence of bilingual children mixing languages at the lexical and morphosyntactic levels as well as sometimes using both

languages with the same interlocutor. However, the Unitary System Hypothesis was refuted by many studies conducted in the last decades.

Overall, studies have provided evidence that 2-year-old bilingual children are able to differentiate between languages and react accordingly to different interlocutors from the moment they start to produce and combine words (cf. Meisel 2004; Paradis et al. 2011; Tracy 2007; inter al.). It has been shown, for example, that simultaneous bilingual children can differentiate between languages already at a one-word and two-word level of production. They do it even in the presence of both parents speaking different languages, which "attests to a high level of linguistic control" (Genesee, Nicoladis, & Paradis 1995:627). A more elaborated discussion of the research findings on bilingual first language acquisition can be found in de Houwer (1995). Furthermore, more recent studies have confirmed the assumption that bilingual children develop separate systems of morphosyntactic representations when they first begin to combine words (cf. Lléo et al. 2004; Meisel 2004; Müller et al. 2006; Tracy & Gawlitzek-Maiwald 2000, as cited in Tracy 2007:76). Another study has shown that bilingual children are also able to distinctly use their languages in unfamiliar situations (Meisel 1990). An important observation was made by other researchers who suggested that the fact that children did not always react "adequately" to when their interlocutors used a different language could be explained by the awareness that also their interlocutors spoke both languages (cf. de Houwer 1990; Lanza 1997; Quay 1995, as cited in Tracy 2007:75). In addition, as exemplified in Dietrich (2002:104), bilingual children can also separate languages in the preverbal phase of language acquisition with the help of intonation patterns (Goodz 1989) and can discriminate between sounds from languages they grow up with and beyond (Eilers, Gavin, & Oller 1982).

On the whole, the early development of lexicon and grammar by simultaneous bilingual children confirms the Dual Language System Hypothesis. Concerning the nature of this hypothesis, one can find other designations in the literature, such as *Separate Development Hypothesis* (de Houwer 1990) or *Early Differentiation Hypothesis* (Meisel 1989). Both hypotheses plead for a differentiation of grammatical systems from early on, which has been proved in many language combinations (see Meisel 2001, 2004 for the overview). Meisel (2010:229) summarizes the most important statements about his hypothesis as follows:

> *"It demonstrates that these bilinguals (i) distinguish functionally between their languages as early as around age 1;10; (ii) develop distinct grammatical properties in the respective languages before age 2;0, having barely reached an MLU (Mean Length of Utterances) value of approximately 2.0; (III) pattern with their monolingual peers in developing grammatically distinct but superficially equivalent expressions differently in their languages, as required by target systems".*

It should also be noted that two versions of the hypothesis about separate grammatical systems in bilingual children are considered, one of which is more restrictive than the other. In the *autonomous* version of this hypothesis (Meisel 1989; Paradis & Genesee 1996), it is stated that languages do not interact with each other. According to Meisel (2010:229), "possible cross-linguistic influence does not result in qualitative alternations of languages development (Meisel 2007), i.e., it does not, for example, affect otherwise invariant order of

phases in developmental sequences". The *non-autonomous* version (Hulk & Müller 2000; Müller & Hulk 2001), however, suggests that interferences might occur in restricted domains, e.g., with regard to the pragmatic-syntax interface (see Hulk & Müller 2000 on architecture of human languages), processing of dual input (Döpke 2000), or the nature of the input itself (context) (Paradis & Navarro 2003).

Interferences can be explained by Hulk and Müller's (2000) reasoning, as argued in Pearson (2009:387):

> *"When there is an overlap at the surface level between structures in an individual's two languages, exposure to the structure in one language is taken as evidence for the structure in the other. The child will persist in that interpretation until more specific evidence from the second language permits the child to move from a more inclusive single (universal) analysis to two language-specific analyses. In their view, cross-linguistic influence is limited to certain parts of the grammar and is more constrained than transfer."*

In *sequential* language acquisition, whether early (cL2) or late (aL2), other hypotheses came into play: *identity, contrastive,* and *interlanguage* hypotheses, which had their origin in the second language acquisition research tradition. In short, as described in Rösch (2011:12), the identity hypothesis (Corder 1967) was based on the assumption that both languages are acquired in the same way and that the L2 learner follows L1 acquisition independently of the age of onset. Contrary to this, the contrastive hypothesis (Lado 1957) postulates that the L2 learner always leans on his or her L1 during acquisition of the L2, which could be reflected in constructions apparently based on the L1. Meanwhile, both hypotheses have become outdated (Rösch 2011:24). Instead, the interlanguage hypothesis (Selinker 1972) was gaining momentum. It has been built upon the assumption that, on the path to acquiring the target language, the L2 learner develops *interlanguages,* which contain elements of the L1 and the L2 as well as features unique to the interlanguage. These interlanguages can also be understood as stages of L2 acquisition, changing as L2 proficiency gradually increases and approaches the target language.

A further hypothesis, *the Developmental Interdependence Hypothesis,* was proposed by Cummins (1979:233), postulating that "the level of L2 competence which a bilingual child attains is partially a function of the type of competence the child has developed in L1 at the time when intensive exposure to L2 begins". This hypothesis has also undergone several variations and, in its latest version, stipulates coordinated development of both languages instead of a strictly sequential order of acquisition, as initially postulated (see Rösch 2011 for more details).

Another way to look at L2 acquisition was described in Meisel (2010), who speaks about a *Fundamental Difference Hypothesis (FDH)* vs. *Universal Grammar* (*UG) Hypothesis* (in nativist's tradition of language acquisition). On the one hand, the differences between the first and second language acquisition "reflect substantive changes in the learner as is argued by the Fundamental Difference Hypothesis (FDH) according to which UG as the centerpiece of the language making capacity is not fully accessible anymore in L2 acquisition; see Bley-

Vroman (1990) among others" (Meisel 2010:230). On the other hand, as argued by the UG Hypothesis, "the LAD[23] remains completely accessible …, consequently, the observed differences cannot be due to changes in the capacities of learners. Instead, differences between these types of acquisition would have to be explained in terms of secondary factors influencing the course of acquisition" (Meisel 2010:230). The age of onset and previous linguistic knowledge are argued to be among these factors. As exemplified further by Meisel (2010), at the beginning L2 learners produce longer and more complex utterances when compared to L1 learners. Their utterances may also include functional elements lacking in L1 acquisition (cf. Grondin & White 1996; Parodi 1998, as cited in Meisel 2010). Within this hypothesis, L2 learners "will necessarily follow distinct developmental paths, at least temporarily" (Meisel 2010:230), despite the accessibility of LAD due to different starting points in language acquisition**.**

On the contrary, the FDH "enables us to make specific claims about the grammatical domains in which L2 is expected to differ from (2)L1. Moreover, it identifies maturational changes in the individual as the major cause for these differences" (Meisel 2010:232).

When considering hypotheses about bilingual language acquisition one cannot omit the discussion about *sensitive phases* in language acquisition, also referred to as *critical periods*. The famous *Critical Period Hypothesis* (CPH), which originated in the domain of ethology and neural sciences and was introduced to the domain of language by Penfield and Roberts (1959, as cited in Pallier 2007). Lenneberg (1967) elaborated upon this hypothesis, postulating that there was a critical period for (second) language acquisition "which terminates with neuropsychological maturity, that is at around puberty: linguistic development needs to be activated between 3-12 years of age for normal development to occur. This hypothesis implies that all language acquisition, be it L_1 or L_2, beyond the critical period will be qualitatively different from childhood language acquisition" (Hamers & Blanc 2000:75). The CPH was broadly discussed in the literature and was a topic of extensive research (cf. Abrahamsson & Hyltenstam 2009; Birdsong 1999, 2006; Hamers & Blanc 2000; Hyltenstam 1992; Hyltenstam & Abrahamsson 2003; Johnson & Newport 1989; Klein 1995; Meisel 2008, 2010; Pallier 2007; inter al.).

However, despite many attempts to prove the reliability of the CPH, no clear evidence in favour of a distinct biologically determined critical period in language acquisition was found (see Hamers & Blanc 2000 for further discussion). For example, as argued by Leather and James (1991), the difficulty in acquiring L2 phonology at a later age for L2 learners (often seen as a consequence of maturation processes and a disadvantage for later L2 acquisition) can be explained by "social and individual constraints that make it hard for them to change their way of speaking" (Hamers & Blanc 2000:76). As stated in Meisel (2010:233), the criticism against CPH, and in particular controversial research findings, stem from an unprecise definition of the hypothesis (Eubank & Gregg 1999). An additional difficulty is that its overall concept encompasses several hypotheses (see Birdsong 1999 for further

[23] LAD – Language Acquisition Device – is an innate mental device which enables humans to acquire a language, in the framework of the nativist theory (Chomsky 1965).

discussion). Ekstrand (1981, as cited in Hamers & Blanc 2000:75) analyzed about 40 various studies available at that time and came to the conclusion that

> *"the greatest advantage arising from the introduction of an L2 at an early age rests on the fact that it allows a longer period of learning, starting at a time when the learner has to acquire less linguistic baggage in order to attain native-like competence; this acquisition is, therefore, faster. The young child does not have a greater facility for learning, but a less complex task for which he has more time".*

Beyond the CPH, two further hypotheses were debated by, for example, Johnson and Newport (1989). The first is the *exercise hypothesis* which is based on the assumption that if a learning ability is exercised from early on it can be transferred to the second language acquisition. The other is the *maturational-state hypothesis* according to which "no matter how much exercised, the language learning ability will decline" (Hamers & Blanc 2000:76). The authors claim that the research seems to provide more evidence for the maturational hypothesis, but it is not necessarily related to biological factors. Another hypothesis proposed by McWhinney (1992) is bound to the automatization of the L1 system. McWhinney suggests that "the increasing automatisation of the L1 system can make the addition of new auditory, articulatory and semantic contrasts more difficult: the more automatised a system becomes, the less it is available for restructuring, hence the greater the difficulty of acquiring L2 later in life" (Hamers & Blanc 2000:76).

There are even more hypotheses and versions of the same hypotheses related to the critical period and sensitive phases discussed in the literature (cf. Birdsong 1999, 2006; Hamers & Blanc 2000; MacWhinney 2005; Singleton 2005 for overviews). As described by Birdsong (2006:36), they consider "biology of species (in its neurobiological or neurocognitive dimensions), developmental aspects of cognition, L1 influence, use of the L1 and L2, and psycho-social/affective dimensions of individuals' personalities, including a person's motivation to learn, appear nativelike, or integrate into the L2 culture." The attempts to ascribe the effects of L2 acquisition to a single mechanism do not bring enough evidence, however. Rather, it is suggested that each of the possible factors may play a certain role in L2 acquisition. Birdsong (2006:36) summarizes that

> *"[o]ngoing research in L2 acquisition must account not only for the typical decline in L2 attainment with age but also for the nativenesslike that late learners are manifestly capable of. To do so adequately will require clear-eyed and open-minded attempts to integrate biological, cognitive, experimental, linguistic, and affective dimensions of L2 learning and processing."*

Another aspect of the discussion on the critical period, or sensitive phase, in language acquisition is the setting of the age ranges and boundaries for the above. It should be kept in mind that a sensitive phase does not imply a clear beginning and end of the period, but rather comprises an optimal phase for acquisition of certain phenomena preceded by a short incline and followed by a gradual decline, as described, for example, in Meisel (2010:234).

Within the research on the critical period, the age limit for child second language acquisition still leading to the native-like proficiency varied according to different studies and approaches: initially postulated as around puberty at the latest (pointing to the end of the

maturation period); later studies referred to the ages of 8-9 (Meisel, Clahsen, & Pienemann 1981), 7-8 (Johnson & Newport 1989), 6-7 (Hyltenstam & Abrahamsson 2003), or between 3-7 (Meisel 2008, 2010) years old, to give just a few examples. All researchers referred, to a different degree, to linguistic or neuropsychological evidence as guidelines for defining the age boundaries (see Meisel 2010 for more discussion on this issue).

This brings us back to the difficulties of bilingual classification as regards the type of language acquisition and age boundaries, which were presented in the previous section. The research findings related to age boundaries are partly contradictory even within the same linguistic domain or else they depend on the investigated language. Beside this, even individual differences or circumstances of language acquisition may be additional factors influencing language acquisition.

It is therefore important to note, as pointed out by Meisel (2010:233), that "it is not 'language' which is affected by changes but certain *domains of grammar.*" Given that different linguistic domains do not develop synchronically in the process of language acquisition, "the critical period is better understood as a cluster of sensitive phases during which the LAD is optimally prepared to integrate new information into developing grammars" (see Birdsong 2006 for the same issue). Furthermore, Tracy (2007:80) suggests that, based on the actual state of the research, the existence of a single sensible phase which embraces all linguistic domains at the same time cannot be assumed.

One of the main goals of the present study is to compare bilingual children of this particular type to monolingual children with regard to their performance and development. For this reason, the choice of the bilingual target group (bilinguals with L1 Russian and L2 German) was based on the type of language acquisition, namely children with assumed 2L1 path of acquisition. In this way, the hypothesis about similar language acquisition can be tested as regards to the domain of reference in the narrative discourse in Russian-German language combination. The age range for this bilingual type was defined according to the classifications that set the upper boundary of the AoO of the L2 between age 3 and 4 (e.g., Meisel 2008, 2011; Rösch 2011; Schwartz 2004). The upper boundary for the AoO of the L2 was lowered to the age 3;3 to account for possible differences in language acquisition between age 3;6 and 4 as reported by, e.g., Meisel (2004, 2011). Thus, the investigated group includes both simultaneous and early sequential bilinguals with the 2L1 path of acquisition (see Chapter 6 for additional restrictions and selection criteria).

2.3.3 Impact of bilingualism on language acquisition and development

In this section, the possible impact of bilingualism on general language development is briefly discussed. It is broadly assumed that early bilingualism may bring direct effects in certain domains of human cognition and language (cf. Bialystok 1999, 2001a, 2001b, 2004, 2007; Cummins 1978; Oller & Eilers 2002; Peal & Lambert 1962; Siegal et al. 2009; Siegal et al. 2010; inter al.) Several important points about simultaneous and sequential bilingual acquisition should be addressed in more detail. In particular, they are important in the

present study for the elaboration of research questions and hypotheses and for the interpretation of results.

Generally, in the course of bilingual language acquisition, most bilingual children following the path of cL2 or early sequential acquisition undergo the same developmental milestones[24] (cf. Chilla 2008; Haberzettl 2007; Kauschke 2012; Meisel 2008; Tracy & Gawlitzek-Maiwald 2000), but, compared to simultaneous bilingual children, they often acquire certain phenomena faster or skip whole developmental stages in the acquisition of grammar (cf. Dimroth & Haberzettl 2008; Rothweiler 2007, as cited in Kauschke 2012). Compared to aL2 learners, cL2 learners are also much faster in acquiring the language (cf. Rothweiler 2006; Thoma & Tracy 2006, as cited in Meisel 2008).

With regard to the impact of bilingualism on cognitive and linguistic abilities in general terms, Peal and Lambert (1962) found that "bilingual elementary school children were more divergent thinkers, better problem solvers, and ahead in content in school than matched monolinguals" (Pearson 2009:393). Since then many studies provided evidence for positive effects of bilingualism on cognitive and linguistic abilities. For example, bilingual children are generally better at metalinguistic awareness than monolingual children. Practicing two or more languages from early on, they have access to different linguistic representations and are able to compare and analyze languages in a more profound way (cf. Cummins 1978; Bialystok 1999, 2001a, 2001b, 2004; inter al.) With regard to control and analysis tasks, discussed within the *Analysis and Control model* proposed by Bialystok (1999), Pearson states (2009:393) that

> *"bilinguals and monolinguals perform equally well in analysis tasks, which demand explicit abstract representations, such as recognizing syntactic errors in speech. By contrast, bilinguals do better in 'control' tasks, those which require them to focus on just one or two aspects of a task while suppressing attention to its other aspects. To be successful, the participant must ignore conflicting or extraneous information."*

Further studies have shown, for example, that bilingual children perform much better when it comes to reading abilities at the so-called emerging reading stage as well as later on in school (cf. Bialystok 1991; Oller & Eilers 2002, as cited in Pearson 2009). The cognitive advantages have been demonstrated even at the preverbal stage of bilingual language development, e.g., in the study of Kovács and Mehler (2009), who examined bilingual infants (7-month-olds) acquiring two languages from birth and compared them to monolingual infants of the same age. Their results demonstrated that "processing representations from 2 languages leads to a domain-general enhancement of the cognitive control system well before the onset of speech" (Kovács & Mehler 2009:6556), indicating advanced executive control functions in early bilinguals, which help them to acquire both languages efficiently.

The mixing of languages, usually referred to as code-switching, or code-mixing (depending on the type of mixing strategies), is not unusual for bilingual children. For a long time, these phenomena were deemed as disadvantageous, a sign of cognitive and linguistic

[24] It should be noted, however, that the language acquisition in L2 learners is subject to large individual variation (Paradis et al. 2011:111).

immaturity, or as proof of the existence of one system for both languages (see more details in the previous subsection). However, nowadays it is considered a sign of language competence, since the ability to "mix" languages consciously or unconsciously according to circumstances requires a profound grammatical knowledge of both languages (cf. Auer 1998; Grosjean 1982, as cited in Tracy & Gawlitzek-Maiwald 2000:501; Paradis et al. 2011; Tracy & Gawlitzek-Maiwald 2000). In particular, bilingual children code-switch mostly with interlocutors who are also bilingual (speaking the same languages as children) and do not do it if their interlocutor is monolingual. The ability to switch between bilingual and monolingual modi is an important competence which demonstrates pragmatic and communicative advantages (Kauschke 2012:124).

Siegal et al. (2009), as well as Siegal et al. (2010), investigated pragmatic competence of 3- to 6-year-old bilingual and monolingual children in several languages more specifically. They found that bilinguals outperformed monolingual children in each experiment conducted within the studies. The pragmatic competence was measured by the ability to "identify responses to questions as violations of Gricean maxims of conversation (to be informative and avoid redundancy, speak the truth, and be relevant and polite" (Siegal et al. 2009:115). The authors pointed out that also monolingual children were sensitive to conversational maxims from early on (cf. Clark 2003; Eskritt, Whalen, & Lee 2008, as cited in Siegal et al. 2010). However, bilingual children have pragmatic advantages in this domain, independently of the language combination (the following language combinations were analyzed: Slovenian-Italian, German-Italian, and English-Japanese). The findings "provide support for the position consistent with evidence that exposure to more than one language facilitates children's metalinguistic awareness, that bilingualism confers an advantage on children's conversational understanding through accentuating their ability to appreciate effective communicative responses" (Siegal et al. 2010:6).

It should be mentioned, however, that the effectiveness of bilingualism may depend on the language proficiency in each of the languages. Cummins (1976), for example, proposed within his *Threshold Hypothesis* that cognitive effects depend on the bilingual proficiency: in case of proficient bilingualism (high level of proficiency in both languages) there should be positive cognitive effects; in case of partial bilingualism (native-like level in one of the languages but not in the other) the effects are neither positive nor negative; and in case of limited bilingualism (low level in both languages) one could assume negative cognitive effects. He estimated that "those aspects of bilingualism which might positively influence cognitive growth are unlikely to come into effect until the child has attained a certain minimum or threshold level of competence in a second language" (Cummins 1979:229). Also, Paradis et al. (2011:54) related different types of bilingualism (associated with different levels of language proficiency) to cognitive effects and concluded that "dual language children should be provided with support – affective and linguistic – to learn both languages fully, and in so doing, to benefit from positive linguistic and cognitive consequences".

3 Overview of studies on reference in child narrative discourse

The present work addresses first and foremost specific phenomena in *child* discourse and, in particular, narrative discourse. After presenting different theoretical frameworks on reference in discourse in the previous chapter, it is necessary to address studies that have been done in the domain of discourse and that implement different theories or provide empirical evidence for theoretical frameworks. This chapter provides an overview of the most relevant and interesting studies with respect to referential devices and discourse cohesion in (narrative) discourse of monolingual and bilingual children. In order to show that the acquisition of reference starts long before children start to produce coherent narratives and that there are important differences in the use of reference depending on the type of discourse, the overview goes beyond the purely narrative discourse. The overview is based on the available literature and, although extensive, does not pretend to be complete. The studies on reference in monolingual and bilingual children are presented in separate sections.

Furthermore, whenever possible, particular attention is paid to the detailed description of the methodology, including the task stimuli, task presentation, the participants' age groups, as well as other factors relevant to a specific study. From my point of view, it is indispensable to know how exactly a study was performed in order to then interpret the results in the context of a study and before taking them for granted and applying them to the discourse in general.

The studies presented here are for the most part ordered thematically. At the same time, it is important to consider the studies from the diachronic perspective in order to follow the development of research interests and trends as well as to better understand the methods, benefits, research limitations, and research demands at different periods. Those studies that are particularly interesting for the current investigation are described in more detail. At the end of each section the findings are briefly summarized with respect to the different aspects of reference and discourse constraints investigated in the presented studies. The crosslinguistic and language-specific features are thereby considered as well.

3.1 Monolingual child (narrative) discourse

The discourse of monolingual children has attracted researchers' attention for quite a long time already. The linguists were eager to know how early children start to comprehend and to use language pragmatically, e.g., in the domain of discourse cohesion and coherence acquisition, information structure, and referential devices. Referential strategies or referential choice were the object of investigation not only in children of different age groups but also in many different languages.

As pointed out by Clancy (1992:441), "[d]evelopmental research on reference dates back at least to Piaget's (1926) observation that in story retellings young children tended to use pronouns where adults would have chosen a more explicit form" (Clancy 1992:441). Piaget ascribed this observation to the children's "ego-centrism": "children under 7 years of age are unable to take another's point of view, and so ignore the listener's inability to identify the intended referents of their pronouns". This claim was later disproved by many researchers who worked on referentiality in child language, including spontaneous, conversational speech, and narrative discourse (e.g., Allen 2000; Bamberg 1987; Berman & Slobin 1994; Hickmann 1987, 1988, 1995, 2000; Karmiloff-Smith 1987; Keenan & Schieffelin 1976; Maratsos 1973; see more studies below).

In many studies the focus often was on the use of reference in early conversational discourse. In particular, Keenan and Klein (1975), as well as Keenan and Schieffelin (1976), analyzed conversational data of 2-3-year-old children in English and reported that children at this age are already able to attract hearer's attention to new discourse topics also by using indefinite noun phrases. Children can even refer to discourse topics with definite forms, including pronouns, in the subsequent discourse. However, as pointed out by Hickmann (2003:120) in respect to these studies, "topics are much more rapidly exhausted than in adult conversation, the denoted entities are typically present in the speech situation, and indefinite determiners … predicate class-membership of these entities … . It is therefore not clear whether we may attribute to the children the ability to introduce referents and to maintain reference to them within discourse".

At the same time, the subsequent research on reference in conversations supported the earlier findings. According to Allen (2000), for example, 2-year-old children speaking Inuktitut[25] already demonstrated sensitivity to the information status of a referent while using referring expressions in conversation. Clancy (1993) found evidence for early pragmatic competence in Korean, the studies of Guerriero et al. (2001) and Guerriero, Oshima-Takane, and Kuriyama (2006) did so for English and Japanese. The latter study (Guerriero et al. 2006) investigated linguistic and non-linguistic (e.g., pointing, touching gestures) pragmatic cues with regard to the information status of referents in spontaneous speech of monolingual English- or Japanese-speaking children aged between 1;9 and 3;0 as well as their mothers, also controlling in this way for the input received by children. They found that, in general, children's linguistic and non-linguistic referential patterns were consistent with the input received from their mothers who showed different patterns in English and Japanese: English-speaking mothers used both language-universal discourse patterns (e.g., the use of lexical forms for new information and non-lexical forms for given information) and language-specific patterns (e.g., predominant use of pronouns for given information in English), whereas Japanese-speaking mothers used language-specific patterns (e.g., null forms for given information in Japanese) only. In addition, the input of Japanese mothers was inconsistent. For example, they did not show a consistent pattern in the use of lexical forms for introducing referents when their children were 1;9 but did so at a later stage of the children's language

[25] Inuktitut is one of the Inuit languages spoken in northern parts of Canada.

development, at age 3 (Guerriero et al. 2006). The investigators conclude that parental input plays an important role in acquisition of discourse-pragmatic principles, including language-specific and language-universal patterns in both languages: “young English-speaking and Japanese-speaking children learn linguistic as well as non-linguistic discourse-pragmatic strategies via parental input, whether language-specific or language-universal” (Guerriero et al. 2006:855).

Gordishevsky and Avrutin (2004) later investigated subject and object omission in Russian spontaneous speech produced by young monolingual children in two age groups: 1;9-2;0 and 2;0-2;6. According to their results, “children omit both subjects and objects … in accordance with the target-like option, which shows the children’s sensitivity to the adult principles guiding argument omission” (Gordishevsky & Avrutin 2004:193). In Russian, both options are widely acceptable despite certain context restrictions.[26] In English, on the other hand, there is a significant difference between the possibilities of subject and object drop (cf. Bloom 1990; Hyams & Wexler 1993), e.g., objects are barely omitted, whereas subject omissions are not rare in the child language. Interestingly, already a decade earlier, Clancy (1982), who investigated narratives produced by young Japanese-speaking children, points out that Japanese children use zero pronouns for maintaining reference in subject position (which is a target-like use) from at least as early as age 3;8. Thus, according to her, it is the use of the full noun phrase (nominal reference) that should be acquired properly rather than the use of ellipsis (Bamberg 1987:41).

Furthermore, De Cat (2004a, 2004b) performed a number of studies on children’s ability to encode topics in spontaneous speech in French-speaking children. She argues for early pragmatic competence and for the idea “that a better understanding of the information structure of the target language forces a reinterpretation of previous experimental results in the sense that children comply with the adult requirements more than has been assumed” (De Cat 2004a:111). This argument is based, on the one hand, on the analysis of encoding new referents in the spontaneous speech of very young children (aged 1;10-3;6) and, on the other hand, on the analysis of null subjects in the data of the same children. She shows that already very young French-speaking children demonstrate a mastery of the topic notion as soon as they start to combine words, which contradicts the assumption of lack of pragmatic competence in identifying and encoding topics at the stage of null subject production. She argues for “clear evidence that on the onset of word combinations, children master the basic notion of topic. This evidence goes against the assumption that children at the null subject stage lack the “pragmatic” competence necessary to identify and encode topics in a target-like fashion” (De Cat 2004b:17).

In one of Serratrice’s earlier studies (2005), she investigated null and overt subjects in spontaneous speech of Italian-speaking children between 1;7 and 3;3 years old. She found that as soon as children reached the mean length of utterance (MLU) in words of 2.0 they could use both null and overt subjects in a way that was pragmatically appropriate to the conversation. In particular, “referents, that were third person, highly active, and with more

[26] More details on possible omissions in Russian are presented in Chapter 4.

than one potential antecedent, were realized overtly significantly more often than first and second person, semi-active, inactive and unambiguous referents" (Serratrice 2007c:187).

Another domain of reference is the acquisition of discourse constraints in narratives wherein children undergo different stages and use various strategies in dealing with a new type of discourse. With respect to the use of full noun phrases and pronouns investigated in various production and comprehension studies (cf. Kail 1976; Sheldon 1977; Farioli 1979; Hickmann 1982), it was shown that children often prefer to use pronouns when a coreferential expression has the same grammatical role, relying on a so-called *parallel role strategy*, whereas subjects are pronominalized even more often. This was also shown later, for example, in the studies of Crawley and Stevenson (1990) or Stevenson et al. (1990) for English (Hickmann 2003:126).

In the studies performed by Karmiloff-Smith (1981, 1983, 1985, 1986, 1987), investigating picture-based narrative discourse, it was demonstrated that young children first use a so-called *bottom-up strategy* for organizing their discourse, wherein they concentrate on the description of pictures. Older children, in contrast, are able to use both bottom-up and bottom-down strategies, relying on a *thematic subject strategy* and building awareness of discourse constraints, finally reaching the ability to reorganize their narrations according to discourse-internal constraints (Hickmann, Kail, & Roland 1995:278-279). Karmiloff-Smith claimed that over a span of sentences, "anaphoric pronominalisation is the default case for the thematic subject. She defined the thematic subject as the preferential preemption of the slot for reference to the main character" (Verhoeven 1993:310). These findings were provided for monolingual children between age 4 and 9 in English and French.

In addition, Karmiloff-Smith (1983) identified three stages of acquisition of discourse devices. At stage 1 (before the age 6), the *procedural stage*, children often use nominal devices and pronouns deictically for first mentions of referents. At the same time, they demonstrate well developed lexicon and syntax but not narrative organization. At stage 2 (between 6 and 8 years old), the *metaprocedural stage*, children start to introduce discourse referents by means of indefinite noun phrases. Pronouns are used anaphorically, whereas the subject is reserved exclusively for the story's main protagonist (*thematic subject strategy),* the overall discourse organization becomes clearer and, simultaneously, the lexicon becomes less diverse. Finally, at stage 3 (appr. 8-9 of age), the subject slot is not exclusively reserved for the main protagonist anymore, now allowing secondary characters to fill the slot as well. The lexicon is rich, and the overall discourse organization is clearly marked and more detailed. At the same time, Karmiloff-Smith pointed out that the identified stages are not necessarily bound to a particular age of children but rather reflect the developmental processes in child narrative discourse (see Wigglesworth 1990:107-108). In addition, discourse organizational processes may depend not only on the type of discourse or narrative task, e.g., conversation vs. narrative, but also on the method of task presentation and complexity of the narrative itself if, for example, there are one main and two secondary protagonists in one story, whereas in another story all protagonists are equally prominent, or

the number of episodes is different, etc. The organization of a narrative in general and the referential choice made with respect to the protagonists might then be quite different.

A little bit later, Bavin and Shopen (1985) and Bavin (1987) elicited narratives with Warlpiri[27]-speaking children aged 4 to 12 years old. To a large extent, they confirmed the identified developmental stages proposed by Karmiloff-Smith as well as the way narratives were organized in general, the inability of children under 6 years of age to structure and maintain reference anaphorically, and the use of the thematic subject strategy by older children. An important methodological finding was, however, that children apparently produce better stories (in terms of discourse cohesion) if the story's length is extended, e.g., when 12 versus 6 pictures were used as stimuli, giving children more time to deal with the story (see Wigglesworth 1990:109).

Bamberg (1987) investigated child narrative discourse in German, in particular, in 3- to 10-year-old children in three age groups with mean ages 3;9, 5;5 and 9;6. He also observed the thematic subject strategy in children's narratives, although at a much earlier age than reported by Karmiloff-Smith. In his study, 3-year-old children were already able to use pronouns anaphorically following the thematic subject strategy and to apply certain discourse constraints to organize their narration. He confirmed his own hypothesis on the thematic subject strategy, claiming that if it is found in the data, it must be observed at an earlier age than in Karmiloff-Smith's study and be "more pronounced since children from the start of their narrative production know that they are producing a narration – in contrast to possible picture descriptions" (Bamberg 1987:44).

However, it should be pointed out that there were fundamental differences in methodology compared to the Karmiloff-Smith's study: children were first presented the whole stimuli (the picture story *Frog, where are you?* (Meyer 1969), consisting of 24 pictures) and then had to tell the story to the experimenter looking at pictures one by one; after that the same story was told to them twice by their parents (on two consecutive days) at home, and then they performed the retelling task again in the kindergarten or school with the experimenter. Only the second story produced by children was taken for an extensive analysis. Therefore, children were not only familiar with the pictures constituting the story they had to retell, but they had also heard how this story could be narrated prior to their own retellings[28]. In addition, the story was different with respect to the length and characters. The coding criteria were also different: whereas Karmiloff-Smith coded only nominal and pronominal expressions in sentence initial position, Bamberg coded all expressions referring to discourse protagonists independently from their sentence position and grammatical role (see Bamberg 1987:48-49).[29]

[27] Warlpiri language is spoken in Australia's Northern Territory.

[28] The exception was made for the oldest group, where parents were not involved in the storytelling. Instead, children first told the story to the experimenter after looking through the picture book (the same condition as in other age groups), and two days later they had to tell the story again. In addition, they were asked to summarize the story without pictures on both occasions (see Bamberg 1987 for more details).

[29] There were more methodological differences between the studies of Karmiloff-Smith and Bamberg that are not presented or commented here (see Bamberg 1987 for more details).

In general, Bamberg observed a *global anaphoric strategy* in narratives of younger children which was expressed through "matching the main protagonist of the story with the third person pronoun, irrespective of whether reference to this character is maintained, or it is reintroduced into the narrative. In a more advanced stage of development, a more adult-like anaphoric strategy was followed by the children, in which nominal expressions are used for the reintroduction of characters, and pronouns for the maintenance of characters" (Verhoeven 1993:310). With regard to pronouns, Bamberg admits that pronouns can be anaphoric and deictic at the same time: "both uses are not mutually exclusive" (Bamberg 1987:32, following Lyons (1977:664)). Concerning introduction of discourse referents, Bamberg (1987) as well as Bamberg and Marchmann (1994) later on claimed that German- and English-speaking children start to use indefinite expressions at age 5, but they are still marginal even at age 10 (see Hickmann 2003:123).

At the same period, Verhoeven (1988) investigated discourse cohesion in narrative production of Turkish-speaking monolingual children, 5 and 7 years old. According to his results, 5-year-old children in the study still produced many deictic markers referring to the extralinguistic context and referred to protagonists of the story using a demonstrative pronoun or by means of agreement on the verb, independent of whether the protagonists were introduced to or maintained through the narrative. In contrast, 7-year-old children produced stories containing predominantly nominal forms used for shifting reference and anaphoric forms used for maintaining reference. Verhoeven claimed that "the development of discourse cohesion involves the elaboration of linguistic devices so that independently represented entries in memory form a system" (Verhoeven 1993:311). Also, older children were aware of episodic boundaries and could mark referents as non-thematic. In this respect, Hickmann (1995) later also found that children's persistence with regard to the use of full noun phrases (in contexts where pronouns could also be used) could be partially explained by episodic boundaries (at least in those cases when a book was used for eliciting a narrative and pages needed to be turned, which is a clear marker of episodic boundary). These findings were compatible with the evidence provided from studies on adults where the same principle was applied to changes in time or place of events indicating a new episode (cf. Clancy 1980; Vonk, Hustinx, & Simons 1992).

Wigglesworth (1990) focused on the role of thematic strategy in different narrative contexts. She investigated narratives of English-speaking children, 4, 6, and 8 years old, as well as of adults. In her study, the narratives were elicited with the help of two picture books, with and without the presence of a strong *thematic subject*, with the pictures being presented one after the other and one at a time. The findings were similar to those of Bamberg (1987) and Bamberg and Marchman (1994), who found "frequent uses of both definite nominals and pronouns in English for the first mentions of referents in a same situation" (Hickmann 2003:123). Wigglesworth also reported that, in her study, children did not preserve the subject position exclusively for main characters and referred to both main and secondary characters by means of pronouns. Therefore, the *thematic subject strategy* postulated by Karmiloff-Smith did not fully apply to the investigated sample.

With regard to the weak role of thematic subject strategy, similar findings were reported by Clancy (1992). She investigated referential strategies in narratives produced by Japanese children aged 3 to 7, as well as adults in two different narrative tasks (picture-based narratives vs. video-based) and questioned the effects of age, discourse context, plot centrality (main vs. subordinate character), and type of narrative task. Beside the thematic subject strategy not being followed in narratives of Japanese children, the findings spoke against the assumption that children did not account for the needs of the listener until the age of 7 years (Piaget's claim on egocentricity). In Clancy's study, Japanese children were able to make referential choices similar to the adult performance, e.g., in contexts requiring explicit nominal expressions, as early as at age 4. She points out that, additionally, "listener's needs (as indicated by adult referential choice) vary across discourse contexts, types of referent, and narrative situations" (Clancy 1992:461). As for the type of narrative task, although there is an impact of this factor on the introduction of discourse referents, especially in children younger than 6, who use more nominal expressions in video-based stories, the overall effect of the narrative type is not very strong. At the same time, she points out that "[t]he significant interactions between narrative type and other variables found in this study demonstrate that reliance on a single genre, such as picture-based narration, can yield only a partial view of referential development" (Clancy 1992:462). It should be stressed, however, that earlier studies also considered the type of narrative task to be an important factor in narrative discourse: e.g., while investigating reference in children's narratives, Hickmann (1980, 1982) elicited narratives with the help of short films, oral texts, or picture sequences. Among other findings, she showed that in the retelling task based on orally presented stories children produced more explicit referential forms than in the retelling task based on the presentation of short films (see Clancy 1992:443).

Guetiérrez-Clellen and Heinrichs-Ramos (1993) studied referential cohesion in Spanish-speaking children aged 4 to 8, with regard to the referential accuracy in the use of referential devices indicating characters in children's narratives. They found that the use of appropriate phrases (i.e., referential expressions) increased with age, whereas the use of additions and ambiguities decreased. The researchers treated these findings as "important indicators of developmental changes in referential accuracy" (Guetiérrez-Clellen & Heinrichs-Ramos 1993:565). The results confirmed previous findings in English-speaking children (cf. Klecan-Aker & Lopez 1985; Pellegrini, Galda, & Rubin 1984, as cited in Guetiérrez-Clellen & Heinrichs-Ramos 1993), who improved their ability to establish referential coherence in early school age. At the same time, no significant age differences were observed in their study with regard to the types of referential expressions or number of characters mentioned in the narratives, which is, according to the authors, compatible with the research on different languages.

In the study of Jisa (2000) the focus was on the reference maintenance and reintroduction of subjects in French child and adult narrative discourse. She investigated narratives (elicited on the basis of the picture-book *Frog, where are you?*) in children of three age groups (5-, 7-, and 10-year-olds) as well as in young adults. Jisa used an elaborated classification for

different discourse contexts (4 types of contexts: introducing, reintroducing, promoting, and maintaining discourse referents in subject position). The results showed that pronouns were the most preferred form of maintaining reference in all groups. At the same time, as the age increased, the use of other types of referential expressions (nouns, pronoun, or non-finite ellipses) increased in this context. In reintroduction contexts the use of nouns grew considerably with age, becoming prevalent in the adult narratives. Children, however, especially the youngest ones, used pronouns and a language-specific construction containing a definite noun phrase and a detached pronoun (which is very frequent in informal spoken French) almost to the same degree. Only the 7-year-olds showed a clear preference for nouns in the reintroduction contexts.

Another interesting example is the study of Ratitamkul (2010), who investigated referential choices with respect to the animate characters in narratives of 4-year-old Thai-speaking children. Primarily, she analyzed the patterns of the Preferred Argument Structure (PAS) postulated by Du Bois (1987) and the relationship between discourse contexts and referential forms produced by children (using the classification of subjects in different discourse contexts proposed by Jisa (2000) several years earlier). The results demonstrated that the referential choice in the investigated sample was generally compatible with PAS patterns and that children did account for discourse contexts, at least those bound to the subject. Interestingly, children preferred to overuse lexical forms (full noun phrases) and did not show adequate competence and coherence in using appropriate referential forms. Given their age however, this is not surprising. According to the author, they apparently had difficulty creating cohesion by means of null forms, which are appropriate for adult narrative discourse in Thai language and which is also the case for Japanese adult discourse known from other investigations (see Clancy 1980).

De Cat (2011) investigated the information status of discourse referents, including structural and definiteness distinctions as well as reference tracking in picture-based stories in French. She analyzed narratives of children between 2 and 5 years old in three age groups. As part of the results, she affirms that even the children of the youngest age group (mean age 2;11) use indefinites in the majority of cases while introducing new referents and definites for subsequent mentions. With regard to reference tracking, she claims that “before the age 4;6, children tend not to track the reference of entities that are absent from the visual context” (De Cat 2011:45), explaining why children of the two youngest age groups used a considerable number of indefinites for subsequent mentions.[30]

The role of the narrative task (or the method of task presentation) was considered quite early on and has been investigated over several decades. For example, in the studies of Warden (1976, 1981) narratives were elicited in different ways. He was the first to propose a

[30] There is no clear description of the methodology for presenting picture stimuli used in this study. Based on side remarks, it seems that the five stimuli pictures were presented in form of a booklet, one on each page, and pages were turned over one after the other so that the children could not know the story’s development from the beginning. Thus, the results (the high number of indefinites for reference introduction from an early age and difficulties in tracking reference) may be explained partly due to the methodological issues.

procedure involving narrating a story to a person other than the experimenter, thereby avoiding the situation where children might presuppose that the story is known to the listener. The experimenter could see the stimuli, and, therefore, the child may believe there is no need to properly introduce the story's protagonists into the discourse. Preference for the use of definite articles in this situation would be explained by the egocentricity effect postulated by Piaget (1955). In one of his studies, Warden then explored this question in English narratives of children aged 3 and 5 years. His findings clearly showed that 3-year-old children used more definite articles for first mention of discourse referents, whereas the use of indefinite articles for reference by 5-year-olds was only slightly higher than the use of definite articles (Warden 1976). At the same time, definite articles were used overwhelmingly for second mention of referents in both age groups. However, there were other factors that could influence the outcome: the children were not very well aware of the fact that they were telling a story to another subject due to hindered vision of the subject seated behind a screen and the proposed story being too implicit. This was noted by Emslie and Stevenson (1981), who replicated the experiment, taking into account the criticized issues and thereby obtaining very different results: an overwhelming preference for indefinite articles for the first mention of referents and definite articles for the second mention of the story's protagonists in both investigated age groups, 3- and 4-year-old English-speaking children. In later studies, Warden also changed the conditions of the experiments. As described in Hickmann (2003:123-124), he "elicited narratives with films in several conditions: children told the story either during or after the projection of the films; their interlocutor (another child) either listened to the story on a telephone in another room, or he or she was in the same room but could not see the screen. Despite some uses of indefinite determiners between five and eight years, children do not use them systematically in any condition".

A little bit later, Power and Dal Martello (1986) investigated two groups of Italian-speaking children, 3-4- and 5-year-olds, with regard to the use of indefinite and definite articles in narratives. In particular, they analyzed first and second mentions of the stories' main protagonists. The peculiarity of this study lay in the procedure the children were involved in. In the first experiment, a child had to tell a story based on picture stimuli (3 pictures) to another child who could not see the pictures. They then switched roles and the second child had to tell another story based on different stimuli to the first child (here they reproduced the procedure of the experiment conducted by Emslie and Stevenson (1981) with 3- and 4-year-old English-speaking children). In the second experiment, 5-year-old children had to tell the same story to two different listeners (children of the same age), one after another. The purpose of the second experiment was to verify whether the use of definite articles for first mentions could still be explained entirely in terms of egocentricity (see the studies of Warden 1976 and Emslie & Stevenson 1981) and not as a failure to take the perspective of the listener into account. The results showed that, in the second experiment, the percentage of definite articles used for first mentions of protagonists significantly increased in the second story. The authors of the study interpreted this finding as confirmation of the egocentric nature of the erroneous use of definite articles in children's narratives.

Much later, the study of Orsolini and DiGiacinto (1996) reported on differences in introducing discourse referents by means of indefinite noun phrases in Italian-speaking 4-year-old children in two types of tasks: recalled fictional fairytales and self-invented stories using toy animals. The same children were able to properly introduce characters in fairytales, but in invented stories they did it inconsistently and less frequently. The authors of the study concluded that children acted according to the "textual convention required by the context" (Jisa 2000:592) and that these types of narratives had different characteristic in terms of story genre. A comparative study of Schneider and Dubé (1997) targeted in particular the effects of story presentation on the children's use of referring expressions in three different conditions: oral only, pictures only, and oral with pictures. They investigated narratives of kindergarten (aged 5;2-6;10) and school (aged 7;8-8;6) English-speaking children. The results of their study clearly showed that the percentage of adequate reference produced by children was higher when the children heard the story prior to retelling, independently of whether the story was accompanied by pictures (oral with picture condition) or not (oral only condition). In other words, children could tell better stories in the retelling task after they had heard the story than telling the story completely by themselves only on the basis of the stimuli pictures.

Another study, performed by Tsimpli, Papakonstantinou, and Nicolopoulou (2011), concerned picture-based narratives in Greek-speaking children between 3;6 and 6,6 years old (4 age groups). In this study two methods were employed, booklet and card methods of presentation, with each story containing four pictures. With regard to reference, the study focused on first and second mentions of the stories' protagonists. The researchers found no significant developmental trends related to the method of presentation and to the reference to the stories' protagonists (introducing and maintaining). However, the youngest age group had some advantages with regard to referent introduction in stories with booklet method of presentation, and the two youngest groups had some advantages with regard to protagonists' second mentions.

Many studies approached different aspects of reference and discourse constraints from the crosslinguistic perspective. For example, MacWhinney and Bates (1978) analyzed the information status of referents in children's discourse in three different languages (English, Italian, and Hungarian). They showed that already 3-year-old children and nearly all 5- and 6-year-old children were able to use indefinite noun phrases for introducing characters seen on presented pictures in Italian and English. In these two languages, this way of introducing new referents is more typical than in Hungarian. At the same time, the pictures presented to the children were not related, so it can be assumed that the children provided a description of the picture and not a story. Thus, their use of indefinite noun phrases could be explained as a labelling of referents as opposed to the introduction of referents into the narration.

Hickmann (1987, 1988) studied the acquisition of cohesion in different languages (English, French, and Chinese) in narratives of children aged between 4 and 10. The major findings concerned the universality of certain discourse principles "involv[ing] interactions among intrasentential properties of referring expressions, such as the referential content or

the propositional role within the clause, and intersentential properties, particularly the degree to which referents are presupposed across clauses" (Verhoeven 1993:311). At the same time, Hickmann showed in her studies that referential devices used by children in narratives for establishing referential cohesion varied considerably across languages. Moreover, later on, many important projects and studies specifically targeted crosslinguistic and language-specific aspects of reference.

In one of the most distinguished long-term projects at that time guided by Berman and Slobin (1994), narratives were collected in English, German, Spanish, Hebrew, and Turkish, from monolingual children between 3 and 9 years old in three or four age groups (there were some variations across languages) and adults. The picture-based story *Frog, where are you?* already used, for example, in Bamberg's studies (1986, 1987), was the basis for the elicitation of narratives. According to the task procedure, children had the opportunity to look through the picture book first and then to tell a story from pictures to a listener who was familiar with the story and could see the pictures.[31] In general, the researchers were "interested in the relations between form and function, within a typological, crosslinguistic framework" (Berman & Slobin 1994:19). Several of the investigated domains were concerned with reference in narratives, e.g., information structure (in particular, topic and focus), pragmatic word-order variations, topic markers, or reference form (noun phrases, pronouns, zero forms).

Among the results with regard to reference presented for different languages within the project, several were related to the use of zero forms for topic maintenance. For example, in English, German, and Hebrew, the use of zero forms (null subjects) considerably increased with age (by 9 years of age in Hebrew and German and by 5 years of age in English), both in coordinative constructions (with and without conjunctions) and in consecutive sentences with shared topics, which would be ungrammatical under other conditions. According to the authors, null subjects are used as a cohesive device and are "functioning as grammatical means for achieving text connectivity" (Berman & Slobin 1994:182). In Turkish and Spanish, where this kind of subject omission is grammaticalized, the number of clauses with null subjects was considerably higher than in other analyzed languages. As for variations in word order, it was observed for all analyzed languages that, although young children (3- and 4-year-olds) generally had no difficulties with word order variations, they did not use them frequently, probably due to the "different demands of dialogic vs. monological discourse for organizing information in terms of emphasis, focus, and topic maintenance" (Aksu-Koç 1994:366), compared to conversational data.

Another interesting finding concerned the use of referential expressions in general. As pointed out by Bamberg, "[i]t is generally assumed that full nominal expressions are used to reintroduce a character after he/she has been temporarily out of focus; pronouns are used to maintain a character's identity in subsequent discourse that is not interrupted by other

[31] It should be noted that the project of Berman and Slobin initiated many further investigations, conducted in numerous languages and with different target groups, whereby the same task stimuli and procedure were used in order to facilitate the comparability of results.

characters' foregrounded activities; and zero forms can only be used if a character has been clearly established in the immediately preceding clause (with additional syntactic constraints)" (Bamberg 1994:225). However, in German, for example, younger children, 3- and 5-year-olds, relied on both pronouns and noun phrases for maintaining and reintroducing referents, whereas they used pronouns more often for the thematic subject and noun phrases for other story characters. Older children, on the other hand, used far more nominal expressions than pronouns in their narratives. The use of zero forms was also a distinctive feature of the older age group, as was shown above in the crosslinguistic comparison.

As for the introduction of referents, which was investigated specifically for German in the framework of the same project, children in the youngest age groups (3- and 5-year-olds) introduced referents mostly by means of definite noun phrases, whereas older children used definite and indefinite noun phrases almost equally. Adults, at their turn, used mostly indefinite expressions (except for reference to the boy – the main protagonist of the story). Bamberg (1994) also observed variations in reference with regard to central versus peripheral characters – the latter were introduced more often by means of indefinite noun phrases, a pattern also seen in the younger age groups.

Furthermore, in a number of other studies conducted in the 1990's, a group of collaborators investigated reference in four languages: French, English, German, and Mandarin Chinese, in monolingual children between 4 and 10 years old in three age groups (4-5, 7, and 9-10 years old on average in each language, the mean age varied from language to language). The overall results showed that the process of pragmatic development and referential devices varied from language to language, and children developed different strategies to cope with reference (see also earlier studies of Hickmann 1987, 1988). For example, the study of Hickmann, Hendriks, Roland, and Liang (1996) on marking new information in narratives showed that only children aged 7 or older could mark newness systematically and that in all investigated languages the local marking (expressed through nominal determiners) emerged later than global marking (expressed through clause structure). Although differences were found across age groups as well as across languages, the strong relationship between local and global marking could be stated in all groups of children. This finding was "consistent with the universal principle regulating information flow, according to which new information is preferred in utterance-final position" (Hickmann et al. 1996:613-614).

In another study on cohesion and anaphora in children's narratives based on the same narrative corpus, Hickmann and Hendriks (1999) focused "on the impact of syntactic, semantic, and pragmatic factors in determining the uses of referring expressions and of word order in the maintenance of reference to the animate characters" (Hickmann & Hendriks 1999:419). According to their results, "discourse coreference has a massive impact on form variations in all ages and language groups, showing that children are sensitive to referential continuity vs. discontinuity across clauses from four years on" (Hickmann & Hendriks 1999:445). Interestingly, while examining null elements in the analyzed languages, they also found that this type of referential expression was used quite frequently for maintaining

reference not only in Chinese (which was not surprising, Chinese being a pro-drop language) but also in German, which is considered a non-pro-drop language[32]. Another finding regarding the clause structure showed that in German, noun phrases were mostly postverbal (meaning little variation), whereas in French, children used the most variation in clause structure. The latter findings demonstrated once again the language-specific aspects of discourse organization.

In the study performed by Clark (2003), English-speaking monolingual children as young as 3 and 4 preferred to use full noun phrases in contexts where older children would use pronouns. In her study, only 5-year-old children used pronouns as a cohesive device in their stories. She pointed out that this was the case for many languages where children demonstrated similar performance with respect to the cohesive use of pronouns, e.g., in the large crosslinguistic study investigating narratives in five languages, already mentioned above (Berman & Slobin 1994), or in the study of Hickmann and Hendriks (1999), who compared narratives of 4- to 10-year-old children in English, French, and Chinese.

The study of Gülzow and Gagarina (2007) investigated large groups of Russian-, German-, and Bulgarian-speaking monolingual children aged from 2 to 6 (five age groups in one-year interval) as well as adults. The focus was on the development of referential cohesion in picture-based narrative context, in particular, on the use of anaphoric pronominal reference. According to their results, German children differentiated the roles of demonstrative[33] and personal pronouns from early on: whereas demonstratives referred to both nominal and non-nominal referents in the previous discourse, personal pronouns, if used at all, referred exclusively to grammatical subjects in 2-year-olds and later on to the non-subject and non-nominal antecedents. In Russian and Bulgarian, on the contrary, personal pronouns were clearly the most frequent type of pronoun used in the discourse, whereas demonstrative pronouns were barely present in Russian and only a few demonstratives were used in Bulgarian (due to language-specific functions of this type of pronoun). With respect to the pronouns' antecedents, they were almost equally distributed between grammatical subjects and objects in children's narratives and did not build an asymmetry to the adult data, as was the case in German.

Recently, a joint study of Nicolopoulou et al. (2011) investigated crosslinguistic properties of reference in children's narratives in English, Danish, Slovak, Greek, Turkish, and Mandarin Chinese, the first two being non-pro-drop and the rest being pro-drop languages. The researchers found that 3- to 6-year-old children in all investigated languages used mainly definite forms for introducing reference into narration, with a growing tendency to use indefinite forms as age increased. With regard to reference maintenance, children's referential choice differed depending on their languages: in non-pro-drop languages, such as

[32] See more on pro-drop languages in Chapter 4.

[33] In German there are several types of demonstrative pronouns. Beside the classical demonstratives, indicating distance relationship, which are very rare in narrative discourse, there is a so-called *d-pronoun* that is homomorphous with the forms of definite article *der/die/das* and is frequently used in narrative discourse, especially in child discourse. More details on demonstratives in German are given in Chapter 4 describing the referential systems of Russian and German.

English or Danish, they used definite forms, whereas children in pro-drop languages, such as Mandarin Chinese, Greek, and Turkish, preferred null pronouns, with a tendency to be replaced by noun phrases as age increased. In case of reference switch, the children's performance depended also on the story line: in the story with two central characters mostly definite forms were used in all languages, whereas in the story with one central character null pronouns were used in pro-drop languages instead.

A few years later, a similar study was performed with 3- to 5-year-old children of English, Greek, and Turkish (Aksu-Koç & Nicolopoulou 2014). Interestingly, this time the results were somewhat different. For example, with regard to the introduction of referents into the narration, Greek-speaking children showed better performance using more indefinite forms than English-speaking children, whereas English-speaking children were better than Turkish-speaking children. For reference maintenance, children of all languages preferred to use pronouns (including null pronouns and clitics in corresponding languages), whereas definite nominal forms were used only by the youngest age group (3-year-olds) in English and by Turkish-speaking children for maintaining one of the central characters (a boy). Some differences across languages bound to the story type were observed as well. Although pronouns were the most frequent form used for maintaining reference, the distribution between pronominal and nominal forms was different in two investigated types of stories. Thus, in the story with one central character, English- and Greek-speaking children predominantly used pronouns for reference maintenance. Only Turkish-speaking children also used definite nominals in all age groups. In the story with two central characters, children tended to use both pronouns and definite nominals to distinguish between the characters, especially in Greek and Turkish. For reintroducing referents into the narration, children of all investigated languages used more definite nominals in the story with two central characters and more pronouns in the story with one central character. At the same time, English-speaking children used pronouns more frequently for reintroducing the boy (the story with one central character) than Greek- or Turkish-speaking children, who used both pronouns and definite nominals for the same purpose.

The studies of Kail and Hickmann (1992) and Hickmann et al. (1995) dealt with referential cohesion, namely with the introduction and maintenance of referents in picture-based narratives, with regard to another aspect of task presentation: mutual vs. non-mutual knowledge conditions. In the mutual condition, both a child and an experimenter had visual access to pictures. In the non-mutual condition, the experimenter to whom a child had to tell a story was blindfolded. The participants in these studies were French-speaking children aged 6, 9, and 11 years old. With regard to the introduction of referents, the results showed that children of all age groups used more indefinite noun phrases to introduce referents in the non-mutual knowledge condition. However, the 6-year-old children showed weak differentiation between the two conditions. The effect of mutual knowledge was the strongest in narratives of 9-year-old children, who introduced referents using strictly indefinite noun phrases in the non-mutual knowledge condition and using definite noun phrases in the

mutual knowledge condition. Children of the oldest age group used more indefinite noun phrases regardless of the experimental condition.

With regard to the reference maintenance by means of pronominal and nominal expressions, it was found that the effect of local coreference was strong in all age groups and in both experimental conditions. Interestingly, children of the older age groups (9- and 11-year-olds) preferred to use pronominal expressions in the non-mutual knowledge condition. At the same time, 6-year-olds used nominal expressions to mark pictures and episode boundaries in both conditions. In general, marking story structure varied according to condition and age. The authors conclude that "discourse-internal functions of referring expressions are a late development characterised by the increasing impact of coreference, which gradually overrides other factors, as children learn to rely maximally on discourse cohesive relations in the absence of mutual knowledge" (Hickmann et al. 1995:277).

Later on, Kail and Sanchez y Lopez (1997) replicated the methodology already used in French for Spanish-speaking children in the same age groups (6-, 9-, and 11-year-olds) and confirmed the results on the introduction of referents into the discourse. At the same time, they revealed interesting differences relating to the main vs. secondary story characters. This was partially due to the structural differences between French and Spanish, the latter being a null-subject language. For example, the effect of mutual knowledge was more pronounced for main characters than for secondary ones. One of the most important findings was "a close combination of determiners and word order variations in marking new information" (Kail & Sanchez y Lopez 1997:126), given that the inverted verb-noun word order was the preferred one for introducing new referents into the narration in all investigated age groups in Spanish.

Another specific domain of reference often investigated is the omission of referents in narrative discourse in languages where such an option is grammaticalized, as was demonstrated, for example, in the studies performed within the project of Berman and Slobin (1994). In one of the further studies, Orsolini et al. (1996) focused on the reintroduction and maintenance of referents. They investigated narratives of Italian children aged between 4 and 10 years. Zero forms were the most frequent form for maintaining reference in all children, which is not surprising, given that Italian is a pro-drop language and subjects can or even should be omitted in appropriate contexts. At the same time, although the noun phrase was the most frequent form of reference in reintroduction contexts, 10-year-old children also occasionally used zero forms for the same purpose, at least in those contexts where the referent was rather clear, e.g., when it could be deduced from gender or verb semantics, especially while referring to the main character of the story. As resumed by Hickmann (2003:123), "[t]he authors argue that the results need not show that young children rely on a macrostructure and that they might be driven by the saliency or visual availability of the referent, rather than by an attempt to disambiguate reference for their listener".

Later on, Serratrice (2007a) investigated referential cohesion in narratives (Frog Story) of Italian and English-speaking 8-year-old children, also with regard to the syntactic position of a referent as well as null vs. overt subjects. In this study, she found a number of

crosslinguistic differences, e.g., in Italian, children introduced referents in post-verbal rather than in pre-verbal subject position, as was the case for English. Whereas in both languages referents were reintroduced mostly by lexical noun phrases, in Italian null subjects were also used for the same purpose (see Orsolini et al. 1996 for the same findings). As for maintaining reference, a clear distinction between the use of overt and null reference was seen in Italian and English: whereas in English overt pronouns were used in around 60% of contexts, in Italian their use was as low as 3%. Serratrice showed that in the narrative context as well children used language-specific referential expressions appropriate for this type of discourse.

Besides studies on the use of referential devices and cohesion in self-produced narratives, there are a number of studies specifically targeting production based on comprehension of reference in general or of selected types of referential expressions in different test conditions, e.g., as responses to general or specific questions, restoring referential cohesion, tests on pronoun resolution, etc. For example, Maratsos (1974, 1976) studied children's responses under different experimental conditions, including production, comprehension, or imitation of nominal expressions at age 3-4. He found that children at this age could distinguish between specific and non-specific reference as well as between given and new information. However, the use of appropriate referential expressions in his study cannot be fully explained by discourse-internal functions of narrative discourse, e.g., the use of indefinite noun phrases for introducing new discourse referents, as those expressions were part of the answer to a question concerning a previous piece of discourse. Moreover, when Karmiloff-Smith (1979) reproduced Maratsos' experiment as part of the series of experiments she conducted with a larger sample (3- to 11-year-olds in eight age groups) in French, she could not confirm Maratsos' findings: on the one hand, in her experiment children of all age groups except for the youngest 3-year-old children gave predominantly correct answers when the referent had to be maintained by a definite noun phrase; on the other hand, in the condition where the referent had to be introduced by means of an indefinite noun phrase, as it was not yet introduced in the previous discourse, only children above 8 years old used more indefinite than definite noun phrases. There was no sufficient explanation for this obvious difference, except for the choice of language in which the experiment was conducted. However, Karmiloff-Smith (1979) did not consider the language to be the only crucial criterion responsible for this difference. What other factors could play a role in this respect remained unclear at that time.

Another study, performed by Hickmann and Schneider (1993), investigated children's ability to restore referential cohesion in narratives after hearing stories where the first and second mentions of the stories' characters were referred to with either appropriate or inappropriate referential devices in three different tasks: retelling stories, repeating verbally some clauses used in the presentation of stories, and actively judging the inappropriate use of referential devices. Children of all age groups in the investigated sample (English-speaking children aged between 4 and 11 in three age groups, 5-, 7-, and 10-year-olds) "could modify the inappropriate expressions into appropriate ones" and "made use of the ongoing discourse context to correct anomalies in cohesion" (Hickmann & Schneider

1993:169,186). Interestingly, whereas many children clearly noticed the incorrect use of definite noun phrases for the first mention of stories' characters, they did not correct the pronominal reference to characters in the same context. For subsequent mentions, if indefinite, they generally replaced them with definite forms. The authors conclude that "children show a surprisingly early ability to restore cohesion, an increasingly automatized reliance on discourse context with age, and a late metalinguistic awareness of the cohesive functions of different noun phrase types" (Hickmann & Schneider 1993:169).

In the study of Tedeschi (2007a) on the influence of discourse cues on choice of referring expressions in Italian-speaking preschool children aged 2;6 to 6;5, it was shown that all children, including the youngest ones, were sensitive to the type of asked question, general or specific, but did not perform adult-like. Only the 6-year-olds were very close to the adult performance. In particular, although younger children (2- and 3-year-olds) also more often produced full noun phrases in response to the general than to the specific question, only 6-year-olds exclusively produced full noun phrases in response to the general question (target-like performance). With respect to the produced clitics and object omissions, both 2- and 3-year-olds used more clitics in the specific question condition than in the general question condition, whereas 3-year-old children also used more object omissions in specific question conditions. Older children as well as adults generally produced clitics only in specific question conditions and omitted objects to a lesser degree than 2- or 3-year-old children.

In one of the further studies, Serratrice (2008) also investigated the role of discourse cues in questions, such as focus structure or the number of referents, as well as perceptual cues, such as visual availability of a referent or referents to the listener, in English preschool and school (6-year-old) children as well as in adults. She found that all investigated groups behaved in the same way with regard to the discourse cues: both focus structure and the number of referents in questions were reliable predictors for the type of referential expression, although children used fewer lexical noun phrases than adults in contexts with two referents. The perceptual cue posed a problem for both groups of children, preschool and school ones: even when the listener had no visual access to the referent, they could not produce a lexical noun phrase in a reliable manner.

Furthermore, the children's sensitivity to the informational needs of their interlocutors from early on was investigated and demonstrated, for example, in the studies of Campbell, Brooks, and Tomasello (2000), Fedorova (2005), Wittek and Tomasello (2005), or Matthews et al. (2006). The first two studies investigated 2,5- and 3,5-year-old English-speaking children (Campbell et al. 2000) as well as 3,5- and 4,5-year-old Russian-speaking children (Fedorova 2005). Both studies focused on the differences in the use of referring expressions as answers to a general question *"What happened?"* or to a specific question *"What did the X do?"* based on the previous short description of the situation, with somewhat different task procedures (in the study of Cambell et al. real objects were used as stimuli, in the study of Fedorova these were pictures). The study performed with English-speaking children showed no age differences between the two investigated groups of children: both age groups used mostly pronouns as a response to a general question and mostly null references as a

response to a specific question. The results of the Russian study showed, however, that whereas older children and adults used mostly full nouns and pronouns as a response to a general question and null references as a response to a specific question, younger children used mostly null references in their responses regardless of the question type. This finding is especially interesting as it presents contradictory results to the studies with English- and Italian-speaking children of the same age just mentioned above. Whether it could be explained by language-specific differences or differences in the methodology was not discussed in the paper. At the same time, Wittek and Tomasello (2005) showed that 2,5-3,5-year-old German-speaking children were already strongly influenced by the discourse context in replying to different questions. In contrast, Matthews et al. (2006) showed that 3- and 4-year-old English-speaking children clearly distinguished between types of referring expressions, depending on whether a referent was mentioned previously or not.

De Cat (2008, 2009) investigated topic and focus subjects in experimental tasks presented to children aged 2 to 5 (forming three age groups) in two conditions: the topic condition (maintaining an established discourse referent) and the focus condition (introducing a new discourse referent). In this study she shows that "children as young as 2;6 already possess the discourse/pragmatic competence necessary to encode topics. This requires them to be able to evaluate the information status of discourse referents, their relevance, and, up to a point, their salience" (De Cat 2009:237). However, De Cat herself underlines that children older than 4 also sometimes use clitics rather than full noun phrases which lead to ambiguity, although their "awareness of other minds is established" (De Cat 2009:237). According to the Theory of Mind, children from the age of 2-3 can correctly judge situations based on "seeing-leads-to-knowing" conditions in non-verbal tests (see O'Neill 1996), i.e., they take the other's mental state into account. In verbal tasks, such as in the studies of De Cat (2008, 2009), children show this capacity only by age 4, which conforms to the general assumption about children's capacity to master false belief at this age (Wellman, Cross, & Watson 2001, as cited in De Cat 2008).[34] In addition, De Cat points out that young children prefer to rely on "what is visible to them and their addressee to reduce the amount of information encoded linguistically. … Initially, the situational context seems to be their preferred (sub-)domain of reference (an idea proposed by Krämer 2005), and they only express linguistically what is essential from an information structural point of view" (De Cat 2009:236).

Variations in word order distinguishing between old and new information have been also observed at an early age, although they do not necessarily mirror the adult language (cf. Baker & Greenfield 1988; Dyakonova 2004; MacWhinney 1985; Narasimhan & Dimroth 2008). In particular, in the study on word order in English and Russian in very young children, Dyakonova (2004) showed that even children younger than 2;6 had a faculty to recognize the pragmatic importance of the word order and were able to reproduce the same structure in their own production. Interesting results on word order in Russian-speaking children were

[34] In studies eliciting complete stories based on picture stimuli children demonstrated pragmatic development even later (see Hickmann et al. 1995; Kail & Hickmann 1992).

also reported by Brun (2005), who investigated the interrelationship between (in)definiteness and syntactic position of nominal elements in elicitation experiments. She found that children in her study (2;0-3;4 years old, mean age 2;11) relied primarily on word order rather than on additional lexical marking of (in)definiteness. She concludes that "children at an early age know and use the mapping between the structural position and a particular interpretational property of a nominal, e.g., (in)definiteness" (Brun 2005:78).

In another study, focusing on the distribution of information in German sentences, Narasimhan and Dimroth (2008) showed that children in two age groups (3;7 and 5;5 of mean age) preferred the order of information new-old in contrast to adults, who prefer the order old-new. Moreover, children did not produce the target structure despite the available input (the speech of caregivers has also been investigated). Thus, it could be concluded that the relation between information structure and word order is established later than in early childhood despite the available input. Interestingly, this study and the study on word order in Russian mentioned above (Dyakonova 2004) show contradictory results, which can also be interpreted as language-specific differences in the domain of information structure and word order. In relation to the study of Guerriero et al. (2006), also reviewed above, it can be said that the results for German are again different as German children did not reproduce the structure given in the input. English and Japanese children, however, did do so, at least with regard to the referential expressions used for introducing and maintaining referents.

One of the examples of studies on pronoun resolution bound to the comprehension of reference is the study of Bittner and Kuehnast (2012). It presents another aspect of referential cohesion in comprehension and imitated production of referential expressions, in particular, personal pronouns. The researchers investigated the acquisition of pronominal resolution by 3- and 5-year-old children in Bulgarian and German. They found that the younger children in their study had only one default pronominal type within their own anaphoric system. According to the authors, with respect to different forms of pronouns, in both languages children of the older age group "resolve personal pronouns to the maximally salient antecedent which they determine by a joint consideration of the subject and animacy status of available referents" (Bittner & Kuehnast 2012:176). However, with respect to the resolution of demonstratives, it follows language-specific constraints. Overall, the authors conclude that "children proceed from primarily discourse- or context-based representation of the situation and the referents involved at 3 years of age to an integration of syntax- and discourse-based representation at 5 years of age" (Bittner & Kuehnast 2012:199).

Increasingly in last years, narratives proved to be a useful instrument of measurement in language impaired children as well as in the domain of language developmental disorders (clinical use) and therapy. For example, the *Edmonton Narrative Norms Instrument (ENNI)*, developed in the framework of the ENNI project, was implemented for measuring narrative abilities and distinguishing between typically developing (TD) and language impaired children (SLI) at the age 4 to 9 based on their own storytellings (narratives). In particular, the use of elements of a so-called *story grammar*[35] and first mentions were chosen to be predicting

[35] See more details on *story grammar* in Chapter 2, section 2.1.

narrative deficits, i.e., to reveal significant differences between typically developing and language impaired children. The results of investigations (Schneider, Hayward, & Dubé 2006 for story grammar elements; Schneider & Hayward 2010 for first mentions) showed that both measures were highly significant at all ages except the age of 9, i.e., typically developing children used indefinite noun phrases for the introduction of referents more often and more elements of the story grammar than children diagnosed as language impaired.

A study performed by Ingold, Jullien, and de Weck (2005) with typically developing (TD) and language impaired (SLI) French-speaking children also concerned the introduction of referents into the narrative discourse. In their study, 6- to-11-year-old SLI children were compared to 4- to 11-year-old TD children in two conditions: telling a story to an adult who knew the story (shared knowledge condition) and to an adult who did not know it (non-shared knowledge condition). The results showed that both investigated groups produced more non-appropriate introductions in a non-shared knowledge condition than in the shared knowledge condition. However, they differed in the types of reference used for the introduction of referents, i.e., TD children used more pronouns and definite noun phrases instead of indefinite noun phrases, whereas SLI children used more null references. At the same time, SLI children generally performed worse than TD children with regard to the introduction of reference. The difference between the two groups of children was greater with increasing age.

Another study assessing linguistic and, in particular, pragmatic impairments via narratives was performed as early as in 2002 by Botting. She compared narratives (picture-based retellings and generated stories) of 7-8-year-old children with linguistic or pragmatic impairments. The narrative performance was measured by overall length of narrative, by narrative devices, including tense marking, negatives, causatives, frames of mind, etc., as well as by story structure (opening and ending of the story, orientation to settings and characters, theme and resolution of the events). She found that children with different types of impairments showed different performance patterns, although narratives required linguistic as well as pragmatic skills. For example, pragmatically impaired children were generally better in story structure than language impaired children, but the latter scored better on such elements of the story structure as the opening and the ending of the story. At the same time, whereas pragmatically impaired children showed positive correlation between pragmatic competence and the use of frames of mind, story length, and so-called social-cognitive enhancers, language impaired children showed negative correlation in the same case. This could be explained in terms of a “dual mechanism effect between pragmatic skills and linguistic skills” (Botting 2002:14). Overall, in Botting’s study children with language impairment considerably differed from typically developing children, producing shorter stories with poorer overall structure and extensive tense errors. The performance of children with pragmatic impairment was in many points of measurement better than that of children with linguistic impairment but still worse than that of typically developing children except for the story length. Given a variety of results and potential of narratives, Botting states that “narrative ability is one of the most interesting and ecologically valid ways in which to

measure communicative competence both in normal populations and in clinical groups" (Botting 2002:1).

Another example of how narratives can be used in language assessments with TD and SLI children is a newly developed instrument, *Multilingual Assessment Instrument for Narratives (MAIN)* (Gagarina et al. 2012, see also Chapter 2, section 2.1 for more details). One of the studies using MAIN investigated, for example, narratives of TD and SLI children between 5;00 and 6;11 years old in German (Skerra, Adani, & Gagarina 2013). The findings showed that stories produced by SLI children were less complex and coherent on both macrostructural and microstructural levels than those produced by TD children. However, the investigation suggested that the use of macrostructural elements without regard to elements of the microstructure is not a reliable indicator for language impairment in children (Skerra, Adani, & Gagarina 2013:152). Another study performed by Balčiūnienė and Kornev (2014) with 6-year-old Russian-speaking TD and SLI children also reported significant differences between TD and SLI children in syntactic and lexical measures (microstructural level) as well as in narrative complexity in retelling context (macrostructural level). These findings speak for MAIN as a solid diagnostic tool, which can be used for further comparative research in the field of narrative discourse.

Intermediate summary

The close relationship between the grammar and the pragmatic use of reference becomes apparent in the many studies reviewed above, e.g., studies on discourse and referential cohesion, topic continuity, information structure, referent's information status and grammatical role, null reference, discourse cues, word order variations, pronoun resolution, etc. As pointed out by Tedeschi (2007a:1), in recent studies on language acquisition, "the integration of syntactic and discourse-pragmatic knowledge has been addressed as an important factor influencing language production at very early stages of language development". She referred to Roeper (1999), Avrutin (1999), Schaeffer (2000), Rizzi (2002), Serratrice et al. (2004), and Erteschik-Shir (2007), among others, who discussed hypotheses on the integration of syntax and discourse at early stages of language development (Tedeschi 2007a, Tedeschi 2007b).

Despite the large number of studies and contexts in which different aspects of reference have been investigated so far, there is still no agreement on how and when children acquire different aspects of discourse and pragmatic competence. The results of studies performed in different languages, with different groups of children, and in different contexts are often contradictory, attributing to children's early or late pragmatic competence in acquisition and differentiation of certain discourse phenomena to a different degree. The pragmatic performance seems to be strongly domain specific. Therefore, many factors play a role in referential choice and have an impact on pragmatic and narrative abilities of children at different developmental stages.

Some studies showed, for example, that already very young children, 2-3 years old, are very capable of using appropriate referential expressions (and omitting them) in different

languages in *conversational* discourse. This implies interaction between discourse partners (cf. Allen 2000; Clancy 1993; Gordishevsky & Avrutin 2004; Guerriero et al. 2006; Keenan & Klein 1975; Keenan and Schiefellin 1976; Serratrice 2005; inter al.). Other studies demonstrated that children as young as 2,5-3 years old are also sensitive to the informational needs of their interlocutors in replying to different types of questions or completing reference under experimental conditions in different languages (cf. Campbell et al. 2000; De Cat 2008, 2009; Maratsos 1974, 1976; Matthews et al. 2006; Wittek & Tomasello 2005). However, in similar experiments children showed the same pragmatic competence only later, beginning at age 5-6 (cf. Karmiloff-Smith 1979; Tedeschi 2007a). In another type of experiment, bound to restoring referential cohesion (Hickmann & Schneider 1993), 5-year-old children could do it in an appropriate way in the same manner as older children, but it is not clear whether younger children also would be able to act similarly, as they were not part of investigation.

In the *narrative* discourse, children apparently have much more difficulties with reference due to additional factors playing a considerable role in referential choice (referential cohesion). Summarized by Kauschke (2012:109), the development of narrative abilities, based on different empirical studies, starts around age 4 when children mostly tell a story referring to story elements in unattached sequences, the characters of the story are not properly introduced and the goals and actions of the story characters as well as the outcomes are not clearly defined. In the case of picture-based narratives, children use pronouns or noun phrases in order to describe pictures directly without establishing reference to the previously given information. Around age 5, children show basic narrative competence as their narratives start to be more coherent and cohesive; the story plot becomes more coherent and children start to use indefinite and definite means of reference in order to differentiate between new and given information, although not yet consistently. At this age, the concentration of cohesive devices comes often at the expense of story content and detail, which are described only shortly and from the perspective of the protagonist. Between age 7 and 9, children's narratives become more structured, flexible, and complex, the perspective of the listener is taken into account to a greater degree and the cohesive devices become more versatile.

Therefore, many researchers plead that narrative abilities develop late, starting after the age of 5-6 and not fully developing until the age of 9-10 (cf. Aksu-Koç 1994; Bamberg 1994; Bavin & Shopen 1985; Bavin 1987; Berman & Slobin 1994; Clark 2003; Guetierrez-Clellen & Heinrichs-Ramos 1993; Hickmann 1987, 1988; Hickmann et al. 1996; Hickmann et al. 1995; Hickmann & Hendriks 1999; Kail & Hickmann 1992; Kail & Sanchez y Lopez 1997; Karmiloff-Smith 1981, 1983, 1985, 1987; Jisa 2000; Nicolopoulou et al. 2011; Ratitamkul 2010; Verhoeven 1988; Warden 1976; Wigglesworth 1990; inter al.). At the same time, other researchers could show that children were also able to perform much better pragmatically at a younger age of 3-4 years old (cf. Clancy 1992; De Cat 2011; Emslie & Stevenson 1981; MacWhinney & Bates 1978; Orsolini & DiGiacinto 1996; inter al.).

Children, moreover, often develop certain discourse and narrative strategies at different ages, although these strategies do not necessarily reflect the adult discourse, as could be

demonstrated by many studies presented in this section, e.g., parallel role strategy (Crawley & Stevenson 1990; Stevenson et al. 1990), bottom-up vs. bottom-down strategies, thematic subject strategy (Karmiloff-Smith 1981, 1983, 1985, 1986, 1987), global anaphoric strategy (Bamberg 1987), or new before old information as word order strategy (Narasimhan & Dimroth 2008). The variety of discourse strategies demonstrates once more that acquisition of discourse constraints is an active process which takes long and requires permanent restructuring before reaching adult-like performance.

The type of narrative task within the same discourse type (in our case, narrative discourse) turned out to be no less essential for differences in children's elicited production and the use of reference. Various types of narrative tasks and methods of presenting narratives have been performed and analyzed in the previous studies on children, e.g., picture- and video-based stories with or without mutual visual access, oral retelling stories, picture stories with oral retelling support, picture sequences presented one after another, all together, with reference to the previous one, etc. (cf. Aksu-Koç & Nicolopoulou 2014; Clancy 1992; De Cat 2011; Bamberg 1987; Berman & Slobin 1994; Gülzow & Gagarina 2007; Hickmann 1982, 2003; Hickmann & Hendriks 1999; Hickmann et al. 1995; Jisa 2000; Kail & Hickmann 1992; Karmiloff-Smith 1985, 1987; Nicolopoulou et al. 2011; Orsolini & DiGiacinto 1996; Ratitamkul 2010; Schneider & Dubé 1997; Serratrice 2007a; Warden 1976, 1981; Wigglesworth 1990; inter al.). The effects of the narrative task could be very well demonstrated, for example, in Bamberg's study (1987) as opposed to the studies of Karmiloff-Smith (1981, 1983, 1985), where the same task material presented in a different way induced very different results. Hickmann (1980, 1982), Clancy (1992), or Schneider and Dubé (1997) specifically investigated the effects of different narrative tasks. Whereas Hickmann (1980, 1982) found differences between orally presented stories and short film presentations, Schneider and Dubé (1997) found that the retelling narrative task (implying hearing a story before telling it) triggered better performance than the telling task. Clancy (1992) also studied the impact of narrative task among other factors influencing the use of reference in narrative discourse and found differences between picture-based and video-based narratives. More recently, the studies of Nicolopoulou et al. (2011) as well as of Aksu-Koç and Nicolopoulou (2014) also showed story-specific properties influencing referential choice in stories with one and two central characters.

Further, considerable age discrepancies in the acquisition of discourse constraints and the systematic use of referential devices could be explained not only by variation in the types of discourse and methodology, including types of tasks, participants, different task procedures, different methods of data collection and analysis, but also by the functional complexity of analyzed languages, as stated, for example, in Hickmann and Hendriks (1999). It is not rare, therefore, that children of the same age are more advanced in one language than in the other with regard to certain discourse phenomena: for example, the very early (as soon as children start to combine words) mastery of topic notion observed in French (De Cat 2004a, 2004b); early pragmatic competence in Korean, Japanese, or English (Clancy 1993; Guerriero et al. 2001; Guerriero et al. 2006); or better performance in introduction of

referents into the narration in Greek children (3-5 years old) compared to English children, who, in their turn, were better than Turkish children (Aksu-Koç & Nicolopoulou 2014). Differences in referential systems of various languages give an insight into universal and language-specific aspects of reference. Certain discourse strategies and constraints may be similar or even claimed as universal across languages (cf. Berman & Slobin 1994; Hickmann et al. 1996; Hinds 1978; Verhoeven 1993; inter al.), e.g., with regard to referential choice (including omissions) or with regard to story structure elements. At the same time, given the diversity of languages, applied methods, and often contradictory findings, one should be careful about interpreting or claiming various patterns as universal.

3.2 Bilingual child (narrative) discourse

It was shown in the previous section that children's performance could considerably vary according to many factors, depending on the type of discourse, the way of presentation of narratives, age, languages, etc. It leads us, among other reflections, to the question of how *bilingual* children cope with reference in both languages, whether they do it in different ways in each of their languages, and whether they are somehow different from the monolingual children. These issues are investigated in this section.

Studying bilingual children surely involves even more challenges, given the diversity of language combinations, bilingual types and settings. Indeed, it is sometimes rather difficult to control for and to differentiate between language developmental paths of bilingual children due to their complex and very different language histories and so to determine what could influence their language performance as compared to that of monolinguals. At the same time, it is necessary to study the discourse of bilingual children, not only because it is fascinating and challenging but because it can provide more evidence on the nature of linguistic and pragmatic constraints in discourse.

As was shown in the previous section, there are a remarkable number of studies on reference in monolingual children, whereas in bilingual research it is not the case to the same extent. Nonetheless, a number of studies on bilingual children's narratives, bound to the domain of reference or dealing with different aspects of discourse in general, have been conducted in the past and the number of studies has grown considerably in recent years. Bilingual studies often address languages in migrant contexts "by investigating narrative discourse produced by children of culturally as well as linguistically diverse immigrant backgrounds" (Berman 2001:419). At the same time, the additional peculiarity of bilingual studies is that the same languages can be investigated in different types of bilinguals, different countries, and different constellations of languages.

In the domain of conversational discourse, Paradis and Navarro (2003) investigated production of null subjects in comparison with overt subjects in Spanish of monolingual and bilingual children. This study concerned spontaneous speech of a young Spanish-English bilingual child (1;9-2;6) and two young Spanish monolingual children (1;8-1;11/2;7). Their results showed that all investigated children used much more null than overt subjects

(conform to other studies on Spanish monolinguals), but the proportion of overt subjects was higher in the speech of the bilingual child. By age 2;6, on the other hand, the number of null vs. overt subjects in the bilingual child approximated the number in monolingual children. At the same time, the discourse-pragmatic contexts in which overt subjects were produced remained quite different from monolingual production at this age as well. The authors concluded that the productive use of overt and null subjects in the spontaneous speech of the bilingual child could be interpreted in terms of crosslinguistic influence in bilingual acquisition on syntax-pragmatics interface as suggested by Müller & Hulk (2001) (see Paradis & Navarro 2003:387).

Serratrice, Sorace, and Paoli (2004) investigated referential cohesion and syntax-pragmatic interface in Italian- and English-speaking monolingual and bilingual children. In particular, the researchers studied the use of overt pronominal vs. null subjects and objects in spontaneous speech of an English-Italian bilingual child (the data were collected between 1;10 and 4;6 of age) and compared it to the monolingual production. They were especially interested in crosslinguistic influence comparing a null subject language (Italian) with a non-null subject language (English). Concurring with their hypothesis, certain crosslinguistic interactions could be observed, e.g., the bilingual child, "overall very sensitive to the pragmatics of the distribution of null subjects in Italian" (Serratrice et al. 2004:200), produced more overt pronominal subjects in Italian compared to monolingual children, some of them being pragmatically inappropriate. At the same time, in English he produced even more overt subjects than monolingual children. This fact speaks for the absence of crosslinguistic influence on English in this particular domain. As for the omission of objects in the analyzed languages, the bilingual child showed similar results compared to monolinguals. In general, the findings in both bilingual and monolingual children demonstrated "the clear asymmetry in both languages between the omission of subjects and objects: at all stages subjects are omitted considerably more often than objects" (Serratrice et al. 2004:199), consistent with earlier accounts. However, objects were omitted more often in Italian, compared to English: "possibly, a consequence of the non-canonical preverbal position of object clitics" (Serratrice et al. 2004:200), as stated by the authors of the study.

One of the first big projects concerning bilingual children was conducted in the Netherlands in the 1990's. In the framework of the project, narrative development was investigated in Turkish-Dutch and Moroccan Arabic-Dutch bilingual children as well as in Dutch and Turkish monolingual children between 4 and 12 years old. In one of the sub-studies (Verhoeven 1993), based on the experimental tasks (understanding anaphora among others) and performed with a subset of participants (4- and 8-year-olds) in Dutch, it was shown "that Turkish and Moroccan children do not fall behind their monolingual Dutch peers. … From a structural point of view there was evidence that the two groups of learners rely on highly comparable intralingual strategies. With respect to anaphora, there was no significant difference in scores on subscores referring to free vs. bound anaphora" (Verhoeven 1993:319). In another study, Verhoeven (1990, as cited in Verhoeven 2004:441) investigated, in particular, topic continuity in Turkish of bilingual and monolingual children,

based on narratives elicited with the Frog story. In his study, bilingual children performed similarly to monolinguals with respect to introducing, maintaining, and reintroducing referents into the narration, but there was a difference in the development of discourse cohesion: 7-year-old bilingual children performed in Turkish as 5-year-old monolingual children. At the same time, the study of Aarssen (1996, as cited in Verhoeven 2004:441), concentrating on the crosslinguistic comparison of Turkish and Dutch in Turkish-Dutch bilingual children between 4 and 10 years old, stated many similarities in the development of referential cohesion in both languages. According to the results of the study, children used language-specific referential devices in order to introduce and maintain referents, and the referential choice was generally made according to general discourse constraints: indefinite noun phrases for introducing new referents in both languages, pronouns in Dutch and null pronouns in Turkish for subsequent reference (Verhoeven 2004:441).

Akinci, Jisa, and Kern (2001) also investigated Turkish in another language combination, namely in Turkish-French bilingual children, and compared them to French monolingual children (5-, 7-, and 10-year-olds). They analyzed narrative components bound to story grammar based on Berman and Slobin (1994:46): (1) onset, (2) unfolding, and (3) resolution of the plot as well as (4) so-called *encapsulations* ("mentions of a summary of the search", Akinci et al. 2001:193). Here the Frog story was also used as stimuli in both languages. The results showed the same number of the component 1 encodings (onset of the plot) in all age groups in both languages (except for 5-year-olds, who produced less onset encodings in Turkish than in French), whereas the use of components 2-4 was slightly better in French than in Turkish. According to the authors, this could be due to the methodology and general task experience in French, being a language of instruction at school.

Kyuchukov (2000) investigated first mentions in picture-based narratives **(**using Hickmann's HORSE and CAT stories) in Turkish in bilingual children with two different language constellations: Turkish-Bulgarian bilinguals (7, 9, and 11 years old) and Turkish-Dutch bilinguals (the latter investigated by Aarssen (1994, as cited in Kyuchukov 2000:65). He also compared them to Turkish-speaking bilingual adults. He found that there were differences between 7-year-old bilingual children growing up in Bulgaria and the Netherlands in introduction of discourse reference: Turkish-Dutch bilinguals used only bare nouns, whereas Turkish-Bulgarian bilinguals used both bare nouns and *bir*[36] noun forms. At the same time, compared to bilingual adults, children showed similar introducing strategies with regard to all referents used in their narrations from the age of 9.

Fiestas and Peña (2004) investigated narrative discourse of Spanish-English bilingual children aged 4;0 to 6;11 (taken as one age group). In their study, two types of narratives, one based on a wordless picture book and another on a static picture, were analyzed with regard to narrative structure (story grammar) as well as overall lexical and syntactic productivity, grammaticality and crosslinguistic influence. The authors of the study claim that children produced narratives of similar complexity in both languages in one of the tasks

[36] "[T]he numeral *bi(r)* 'one' can be regarded as an optional marker of indefiniteness (Dede, 1986 after Küntay, 1997)" (Kyuchukov 2000:68).

(picture book narratives). Interestingly, with regard to the narrative structure, children more often produced story grammar elements related to attempts and initiating events in their L1 Spanish and elements related to consequences in their L2 English. The researchers explained this finding in terms of learning strategies which included conclusion of the narrative learned at school, whereas at home children were "more concerned with including relationships and descriptions" (Fiestas & Peña 2004:163), similarly to the conclusions of the study of Akinci et al. (2001). As for the productivity and grammaticality of produced sentences, children showed similar results in both languages; however, in task comparison they produced more sentences with interference from Spanish in the book task. Also, the types of crosslinguistic interference from Spanish to English were more pronounced, including the use of verbs, omissions of pronouns, or modified syntactic structures. In Spanish, mostly lexical code-switching from English was observed. Although this study did not investigated reference in particular, the results can be seen as important indicators for the crosslinguistic influence with regard to the structure of narratives, task effects, and overall grammaticality and productivity in both languages.

Another study, conducted by Guetiérrez-Clellen (2002) on narratives in Spanish-English bilingual children (7;3 to 8;7 years old), focused on assessment of language proficiency in both languages using spontaneous narratives (*Frog, where are you?* (Mayer 1969) in English and *Frog goes to Dinner* (Mayer 1974) in Spanish) as well as story recall and story comprehension tasks (based on *The Tiger's Whisker,* adapted from Stein and Glenn (1979), and *El Naufragio,* adapted from *Shipwrecked* by Verdick (1979)). Language proficiency was measured by the number of grammatically correct sentences in each language in spontaneous narrative samples; story recall capacity was measured by the number of recalled story units as well as related and unrelated inferences; and story comprehension was measured by the number of correct answers to factual and inferential questions about the story content. In produced narratives, grammatical performance of bilingual children did not differ in the two analyzed languages. One important observation made by Guetiérrez-Clellen refers to the ability of bilingual children to produce narrative patterns despite deficits in grammatical development: "[t]he fact that some of these children appeared to be still in the process of learning the second language based on their use of the grammar … did not preclude their use of narrative structure on spontaneous storytelling tasks" (Guetiérrez-Clellen 2002:189). At the same time, some differences across languages could be observed in recall and story comprehension tasks (but not in spontaneous narratives), namely with regard to the use of narrative elements: children showed better narrative recall and story comprehension in English. Apparently, "[n]arrative recall tasks require different language processing demands compared to spontaneous narrative production tasks" (Guetiérrez-Clellen 2002:189). In addition, "differences in vocabulary and literacy experience in Spanish may affect the child's ability to recall and comprehend Spanish narrative texts" (Guetiérrez-Clellen 2002:191). The results of the study speak for the assumption that, although bilingual children may be rather proficient in both languages from the grammatical point of view, as

demonstrated in the spontaneous narrative task, their narrative abilities with regard to different narrative tasks may be unequal.

The study of Montanari (2004), on the other hand, demonstrated different findings in bilingual children with the same language combination as in the study of Guetiérrez-Clellen (2002). Montanari investigated development of narrative competence in L1 Spanish and L2 English of three 5-year-old Spanish-English bilingual children. Among other aspects, she investigated the use of referential devices in narratives, based on *Frog, where are you?* and on another story by the same author *A boy, a dog, and a frog* (Mayer 1967), produced in both languages twice within six months. All references to the stories' characters throughout the narratives were evaluated for their appropriateness and unambiguousness. The quality of referential cohesion was quantified in points. In contrast to Guetiérez-Clellen, Montanari found that narrative competence of Spanish-English bilingual children in L2 English highly depended on their grammatical proficiency: "without an array of linguistic devices at their disposal, the children in this study fail to produce coherent and cohesive narratives in their L2" (Montanari 2004:449); in particular, with regard to the use of referential devices. At the same time, the same children were cognitively able to produce coherent and cohesive narratives, as could be seen based on their L1 Spanish narratives.

Later on, in another study, Gagarina (2012) focused on the investigation of discourse cohesion, referential and relational, in Russian narratives of Russian-German early sequential bilingual children in three age groups (4-, 5-, and 6-year-olds), monolingual peers and adults. With regard to referential cohesion, the use of personal pronouns was taken into consideration. The results showed that 4- and 5-year-old bilingual children used more personal pronouns than monolingual children in all age groups, 6-year-old bilinguals, and monolingual adults, who all used a similar number of personal pronouns. According to the author, one of the possible explanations "might be rooted in the bilingual lexicon problems" (Gagarina 2012:112). At the same time, results for the use of subject referring pronouns gave a different picture: whereas 4-year-old bilinguals produced far more pronouns as subjects than monolinguals of the same age, the number of pronouns decreased in the 5-year-old bilinguals and increased in 5-year-old monolinguals. By age 6, the number of personal pronouns stayed stable in monolinguals and increased further in bilingual children. Compared to adults, both monolingual and bilingual children were very close to the target adult production by age 5. Interestingly, another investigated aspect of reference, namely the number of personal pronouns referring to an antecedent in a previous proposition, showed that in this domain bilingual and monolingual children produced similar results, especially at age 5 and 6. However, their performance was rather different from the adult production. These controversial results indicate once more the complex nature of reference in narrative discourse and numerous developmental changes undergone by monolingual and bilingual children.

The study of Serratrice (2007a) concentrated on crosslinguistic differences in the use of referential cohesion in bilingual and monolingual acquisition. She examined referential cohesion in narratives (based on the Frog Story) of 8-year-old English-Italian simultaneous

bilingual children as well as of monolingual children of the same age, in particular, the use of referential expressions for introducing, maintaining, and reintroducing discourse referents. In addition to findings concerning monolingual children already described previously in this chapter, she found that in bilingual children the use of referring expressions was language-specific in each language and that mostly noun phrases were used for the introduction of new referents and for the reintroduction of old referents (Serratrice 2007a:1058), demonstrating similar patterns in referential cohesion as compared to monolingual children. Bilingual children also showed language-specific patterns with regard to the use of pronominal devices for maintaining and reintroducing discourse referents, by using overt pronouns in English much more frequently than in Italian where they used far more null pronouns instead. As for the difference between bilingual and monolingual children, children differed significantly only with respect to the use of referential expressions in object position in Italian: bilingual children used far more noun phrases in this position than their monolingual peers did. The overall findings of this study suggest that simultaneous bilingual children use language-specific referential devices very well and do not differ much from monolingual children of the same age. They may, however, have specific domains where they behave differently from monolinguals, at least at a certain stage of language development.

Another study performed by Chen and Lei (2013) replicated the methodology used by Serratrice (2007a) in order to investigate referential cohesion (introduction, maintenance, and reintroduction of the story characters) in narratives of 8-10-year-old Chinese-English bilingual and monolingual children of respective languages. Concluding from the monolingual data, they found that language-specific devices (definite and indefinite noun phrases as well as overt and null pronouns) were used in different ways in Chinese and in English. For example, English monolinguals used significantly more indefinite noun phrases and fewer definite noun phrases for the introduction of referents compared to Chinese monolinguals. English monolinguals also used more overt pronouns for maintaining reference, whereas Chinese children used more null pronouns for the same purpose. This is not surprising, however, given the language-specific differences in referential devices between English and Chinese. More interestingly, two opposite patterns have been found when comparing monolingual and bilingual narratives: in the use of referential expressions for introducing referents, Chinese-English bilingual children differed from English monolinguals, but in the use of referential expressions for reintroducing referents they differed from Chinese monolinguals. In reference maintenance, however, bilingual children differed significantly from monolingual peers neither in English, nor in Chinese. In light of the previous findings, e.g., in Serratrice (2007a), who showed different patterns in bilingual acquisition of Italian and English, these findings suggest that bilingual development is complex and crosslinguistic influences are possible.

Gagarina (2008) investigated anaphoric pronominal reference in narratives of 5-year-old Russian-German consecutive (sequential) and simultaneous bilingual children as well as in narratives of monolingual children of the same age and adults. An additional comparison between two different bilingual types within one study showed that the type of bilingualism

should be accounted for as well, as could be seen from the results of the study. In general, personal and demonstrative pronouns were used almost equally for pronominalization in both bilingual and monolingual children in German. In Russian, these were mostly personal pronouns, with a small number of zero pronouns. Demonstrative pronouns in Russian were used only by bilingual children, but their number was minimal. As for the type of bilingualism, the following differences could be observed between simultaneous and consecutive bilinguals: in Russian, simultaneous bilinguals showed similar distribution with regard to personal and zero pronouns compared to monolingual children, whereas consecutive bilinguals used more personal pronouns compared to other groups of children. Overall, in German, the pronominalization rate was lower than in Russian in all groups, monolingual and bilingual, with the lowest pronominalization rate in consecutive (sequential) bilinguals. At the same time, the number of produced zero and demonstrative pronouns was similar to the same pronominal types used by simultaneous bilinguals.

With regard to the syntactic function of the antecedent, in Russian, both groups of bilingual children tended to pronominalize subjects more often than monolingual children, whereas monolingual children showed very similar results compared to adults. In German, however, all investigated groups behaved quite differently: whereas the pronominalization of subjects in monolingual children and adults was generally higher than in Russian, the group of consecutive bilinguals pronominalized subjects much more rarely (almost half as less) than all other groups, especially in comparison to their performance in Russian, where both bilingual groups behaved similarly. In German, only the results of simultaneous bilinguals were comparable to monolingual children and adults in this particular domain. These findings suggest that, although both bilingual groups behaved similarly with regard to the pronominalization of subjects in Russian, acquired from birth, only the group of simultaneous bilinguals showed similar behaviour compared to monolingual children and adults in German. According to the author, this could be interpreted in terms of language acquisition processes (as the investigated group of consecutive bilinguals started to acquire German after the age of 3) and in terms of language-specific features: these children “apparently need more processing time and more effort with structural elements of grammar in order to construct a coherent and a cohesive discourse” (Gagarina 2008:336).

In one of my own studies (Topaj 2010), several aspects of reference and topicality of discourse referents were investigated in narratives of Russian-German early sequential bilinguals aged 4 to 6 (treated as one age group). The focus was on the impact of the information status on the linguistic form of referential expressions in both languages. The results showed that bilingual children used mainly language-specific referential expressions (except for the occasional use of demonstrative noun phrases in Russian) and that types of referential expressions used for introducing, maintaining, and reintroducing discourse referents differed according to the information status[37] of discourse referents. For example, for introducing new referents (information status *new*) in Russian, mostly bare nouns were used, with preference to preverbal bare nouns as opposed to postverbal bare nouns, which

[37] How the information status was defined can be seen in Chapter 2, section 2.2.

could be treated as indefinite noun phrases under certain conditions (e.g., in introductory sentences)[38]. In German, definite and indefinite noun phrases were used in most cases for the same purpose, with preference to definite noun phrases. For maintaining referents (information status *given*), in both languages several types of referential expressions were used: in Russian, mostly personal and zero pronouns, followed by bare nouns; and in German, personal, demonstrative, and zero pronouns as well as definite noun phrases, all distributed almost evenly. In order to reintroduce referents into the narration (information status *accessible*), bilingual children used mostly bare nouns and personal pronouns in Russian but almost exclusively definite noun phrases in German, with a small number of demonstrative and personal pronouns. The results showed the impact of the information status of the referential choice on the one hand and crosslinguistic differences between the investigated languages on the other hand. However, it was not clear whether the use of different referential expressions would change with age (between 4 and 6 years) as the age range of the investigated children was rather broad.

Another domain of reference, also in bilingual research, concerns the use of null reference (null subject). For example, Kupersmitt and Berman (2001) performed an extensive analysis of child narratives (based on the picture story *Frog, where are you?*) in both languages of Hebrew-Spanish bilingual children aged from 3 to 12, divided into four age groups. One part of the analysis dealt with reference, in particular, with subject ellipsis (null subject). Subject ellipsis is possible in both languages but occurs in far more contexts in Spanish. The authors assumed that bilingual children would show similar referential patterns compared to monolingual children. In conformity with their expectations, null subjects were used more often in Spanish than in Hebrew in all age groups, and the contexts differed according to language-specific constraints: whereas in Spanish children used null subjects for both *discourse connectivity* and *topic maintenance* (the first referring to null subjects in "same-subject coordinated and subordinate clauses" and the second to null subject "across independent clauses", Kupersmitt & Berman 2001:300) across all age groups, in Hebrew null subjects were used mostly for discourse connectivity. Only in 6- and 7-year-olds were there instances of clauses produced with subject ellipsis for the purpose of topic maintenance. In addition, only the youngest Hebrew-speaking children used null subjects in a small number of clauses. The number of null subjects was much higher in all other age groups in both languages. Compared to monolingual children from the Berman and Slobin's project (see Berman & Slobin 1994), "with regard to subject ellipsis bilingual children tend to behave much like monolinguals in both Spanish and Hebrew" (Kupersmitt & Berman 2001:302). However, it should be mentioned that the number of participants per age group in the bilingual sample was rather low (2-3 children), thus no definitive conclusions can be made based on the obtained results.

In the domain of comprehension of reference, a study of Serratrice (2007b) should be mentioned. The study concerned the interpretation of anaphoric and cataphoric pronouns in Italian, based on the picture verification task and performed with 8-year-old monolingual and

[38] More details on preverbal vs. postverbal bare nouns in Russian are given in Chapter 4.

English-Italian bilingual children as well as with adults. The results suggested that all investigated groups did not differ in the choice of anaphoric antecedent for null anaphoric pronouns and that the adults differed only marginally in the interpretation of null cataphoric pronouns (Serratrice 2007b:225). However, with regard to the overt pronominal subjects in anaphoric condition, bilingual children showed different interpretation, compared to the adults and monolingual children (accepting those as coreferential much more often). With regard to the overt cataphoric pronouns, both bilingual and monolingual children "accepted a subject as the antecedent of an overt cataphoric pronoun significantly more often than the adults" (Serratrice 2007b:225). These findings illustrate that, although bilingual children perform similarly to monolingual peers and adults, there are language-specific aspects in anaphora resolution which may be processed differently in bilingual children, whereas other aspects seem to be language-universal.

Several studies using *Multilingual Assessment Instrument for Narratives (MAIN)* (Gagarina et al. 2012) have already been presented in the previous section. In one of the studies involving bilingual children, 5- and 6-year-old Lithuanian-English bilingual children (living in United Kingdom) were compared to Lithuanian monolinguals of the same age (Balčiūnienė 2014). The results of the study showed that, although bilingual children were less diverse in the lexical domain and in the use of cohesive devices, they demonstrated a similar performance in syntactic domain and in the use of elements of the story structure. At the same time, bilingual children produced longer sentences and overall longer stories (measured in number of sentences).

Intermediate summary

Studies presented in the section on bilingual child discourse embraced different language combinations, varying from Spanish-English, Italian-English, and Chinese-English to Russian-German, Turkish-Dutch, Turkish-French, Turkish-Bulgarian, Lithuanian-English, and others. Some studies investigated bilingual performance in both of the children's languages (cf. Aarssen 1996; Fiestas & Peña 2004; Gutiérrez-Clellen 2002; Kupersmitt & Berman 2001; Kyuchukov 2000; Montanari 2004; Topaj 2010), other studies compared bilingual with monolingual performance in one or in both languages (cf. Akinci et al. 2001; Balčiūnienė 2014; Chen & Lei 2013; Gagarina 2008, 2012; Paradis & Navarro 2003; Serratrice 2007a, 2007b; Serratrice et al. 2004; Verhoeven 1993).

Findings based on the comparison of monolingual and bilingual data are often discussed in the framework of universal or language-specific aspects of reference. In general, researchers agree that bilingual children mostly use language-specific devices and rely on language-specific and universal referential strategies (cf. Aarssen 1996; Gagarina 2008, 2012; Kupersmitt & Berman 2001; Kyuchukov 2000; Serratrice 2007a; Verhoeven 1993). In Verhoeven's words, studies on typologically different languages in bilingual acquisition are good examples of crosslinguistic comparison as such a comparison "makes it possible to discover universal and particular dimensions in language development" (Verhoeven 1993:319). Serratrice (2007a) emphasized, however, that, although bilingual children used

language-specific devices in each language, they had specific domains where their performance was different from monolinguals and which could not be explained by crosslinguistic influence, e.g., in Italian-English bilingual children in the use of referential expressions in object positions in Italian (Serratrice 2007a).

With regard to the crosslinguistic influences, some researchers discovered such influences only on one language, e.g., in the study of Serratrice et al. (2004) on referential cohesion in Italian-English children (crosslinguistic influence was observed in Italian) or in the study of Fiestas and Peña (2004), where Spanish-English bilingual children demonstrated similar proficiency in story grammar in both languages but with some crosslinguistic influence on the environmental language (English)**.** Other researchers, on the other hand, showed that crosslinguistic influences could be bi-directional, e.g., in the study of Chen and Lei (2013), where bilinguals showed domain-specific preferences of possible crosslinguistic influences: Chinese-English bilinguals were different from English monolinguals in referent introduction but different from Chinese monolinguals in referent reintroduction. At the same time, all investigated groups were similar in reference maintenance. From this perspective, it is especially interesting to observe bilingual language development in the same language but as part of different language combinations, as was shown in the study of Kyuchukov (2000), investigating Turkish in Turkish-Bulgarian and Turkish-Dutch children. Indeed, there were differences with regard to the introduction of referents into the narration which could speak for crosslinguistic influence on/from the other language.

With regard to the role of narrative task, bilinguals are generally similar to monolinguals. They show different performances, depending on the task. At the same time, in this domain they are still different from monolinguals to some degree. For example, in the study of Fiestas and Peña (2004) they showed similar performance to monolinguals in both languages only in one of the tasks but not in the other.

The differences in bilingual performance can also be related to language acquisition and development in general. However, often these differences are only temporary as they are part of the process of bilingual language acquisition and development and can be overcome with time. For example, in spontaneous speech bilingual children differ from monolingual children initially. Later on, though, bilingual and monolingual children become rather comparable despite certain functions remaining partially different, at least in the investigated age range (see Paradis & Navarro 2003; Serratrice et al. 2004). Other researchers reported later bilingual pragmatic development in comparison to monolinguals, e.g., 7-year-old Turkish-Dutch bilinguals performed as 5-year-old Turkish monolinguals (Verhoeven 1990) or 4-5-year-old Russian-German bilinguals showed worse performance than monolingual children of the same age in Russian but similar performance at age 6 (Gagarina 2012).

An important finding stated by Gutiérrez-Clellen (2002) for Spanish-English bilinguals is bound to the ability of bilingual children to produce narrative patterns despite grammatical deficits. For example, Montanari (2004) claims that in the same language combination narrative performance of bilingual children in L2 English depends on their grammatical performance. Often, a parallel has been drawn between better performance in the language

of environment and literacy development, as language of environment is mostly the language of instruction and children have more experience in specific narrative tasks in this language (cf. Akinci et al. 2001; Fiestas & Peña 2004; Gutiérrez-Clellen 2002).

Finally, the type of bilingualism seems to play an important role in the discourse of bilingual children. For example, Gagarina (2008) compared 5-year-old Russian-German simultaneous and sequential bilinguals to monolingual children and found that these two types of bilinguals behaved differently with regard to specific aspects of reference. In her study, only simultaneous bilinguals were close to monolingual children in German, whereas both types of bilinguals showed different performance compared to each other in both languages and compared to monolinguals in Russian.

Overall, it can be said that with regard to the bilingual acquisition of reference and discourse constraints, in production as in comprehension, bilingual children are rather similar to monolinguals in many aspects of reference and discourse in general but are still different from monolinguals in some specific aspects, at least in several of the analyzed languages.

3.3 Summary

In this chapter, different studies on reference in child (narrative) discourse, monolingual and bilingual, were reviewed and shortly summarized in respective sections. In general, it can be said that the acquisition of discourse constraints and the ability to use reference appropriately according to a (given) context is a complex task which requires a long time and access to different discourse types and tasks to learn. Referential strategies and referential choice may vary significantly in different contexts. Overall, children cope very well with the diversity of discourse tasks and react to the subtleties of the context, including not only differences in discourse types (e.g., conversational vs. narrative) but also differences in task procedure, such as telling vs. retelling tasks, narratives elicited with the help of pictures vs. videos, or telling a story to a person who is aware of the content vs. telling a story to an uninvolved person. The discrepancies between comprehension and production of reference are also striking. It is a well-known fact, however, that children generally understand much more than they can produce or use systematically at a certain age. Despite many difficulties (challenges) in the domain of reference it could be shown that children are active participants of the discourse and are highly capable learners from early on. It is amazing how much pragmatic competence children exhibit already at 2-3 years of age. However, the path to fully developed pragmatic skills, especially in the narrative domain, is long. Only at age 9-10 do children demonstrate a complete understanding and systematic use of the whole range of discourse constraints. At the same time, it is not always very clear when exactly children acquire certain constraints, for multiple reasons bound to different discourse contexts as well as to universal and language-specific aspects of reference.

This applies to the same degree to monolingual and bilingual children. In general, bilingual children are very similar to monolinguals in both acquisition and use of reference. Independently of individual languages and language combinations, bilingual children also

demonstrate early sensitivity to discourse constraints and increasing pragmatic competence in both languages, using language-specific devices in each of their languages and accounting for language-specific and language-independent referential strategies. However, crosslinguistic differences seem to influence their performance to some degree, depending on language combinations, bilingual type, and general language proficiency in both of their languages. At the same time, there seem to be domains which are proper to bilingual language acquisition but cannot be explained by crosslinguistic influence. In addition, such factors as different cultural and educational experience also influence pragmatic performance of bilingual children.

It should be emphasized that, given the very different contexts and conditions of the studies, even subtle differences in the task complexity, task procedure, coding of data, or way of analysis can lead to different results. Therefore, results of children's pragmatic performance should be considered above all within the specific context of a conducted study, as the comparability of the results based on different contexts and methodologies seems to be rather relative. It is always worth looking at the methodology of a study before taking findings for granted and drawing definite conclusions. This demonstrates once again the significance of the context, stimuli choice, and task procedure as well as the methodology as a whole for the outcome of a study and the interpretation of its results.

In addition, the composition of age groups and participants (including different types of bilinguals) differs considerably from study to study. Sometimes age groups included children with a one-year age range and in other cases the range was as much as 3 or 4 years. On the other hand, not infrequently age groups with large gaps in-between were compared, e.g., 3-year-olds compared to 7-year-olds or 6-year-olds to 10-year-olds. In this way, many potential changes occurring in the meantime might stay undetected or become assigned to a different age. For example, if the acquisition of certain pragmatic constraints is assigned to 10-year-olds, whereas the next youngest investigated age group was 7-year-olds, then the developmental shift may have occurred any time in between. Another issue with robustness of results is often related to very small samples or case studies, which diminish the conclusiveness of results based on the presented evidence, despite being very plausible and by no doubt valuable for the research. Still, not paying attention to the sample size can lead to unfounded statements about children's pragmatic development and the representativeness of results in general.

Not few studies addressed selected discourse phenomena without considering the system of reference of a corresponding language as a whole, so that it is not always clear how children compensate for the over- and underuse of certain types of referential expressions or what they use instead. This makes drawing definitive conclusions about referential choice, or reference in general, more difficult. In any case, many aspects of discourse constraints or referential strategies have not yet been exhaustively investigated in various contexts, leaving many questions open and in need of closer investigation.

4 Russian and German referential systems in comparison

4.1 General overview

Before starting to analyze referential choice in any language/s, one should be clear about the available set of referential expressions in each analyzed language and their linguistic forms. This chapter provides a detailed description of the referential systems of Russian and German, which are the languages under analysis in the present work.

These languages belong to different language groups, Russian being an East Slavic language belonging to the Balto-Slavic group and German being a West Germanic language belonging to the Germanic group. Both groups are part of the family of Indo-European languages and have many typological similarities. With regard to the systems of reference in these languages, both of them exhibit the whole range of similar referential expressions, from full noun phrases to personal, demonstrative, or zero pronouns.

In order to show the similarities or differences in the referential systems of the analyzed languages, an overview is given in Table 1, where they are presented in parallel, together with examples of different grammatical forms in both languages.[39] The plus and minus signs indicate the presence or absence of grammatical forms in the corresponding language, the brackets indicate differences or restrictions in use (or in function) of particular types of referential expressions. Examples of personal and zero pronouns are given in the 3rd person, as it is the most common for referential pronouns. Abbreviations given in the table are used throughout the whole text.

The examples are given for all three grammatical genders (masculine, feminine, neuter), present in both Russian and German. In this way, the differences in assigning gender, which represent another challenge for bilingual children, can be illustrated. In Russian and German, the same words, e.g., *tree, child, cat*, etc., which exist in both languages might have different gender[40]. As gender is marked on both pronouns and articles in German, it is a grammatical category which is highly important for encoding and identifying referents in the discourse. In Russian, gender is marked directly on the noun, whereas pronouns are marked for gender through different forms in the same way as in German.

[39] Note that not all pronominal expressions available in Russian and German are presented in the table but only those which are typically used in the narrative discourse (even if some of them are quite marginal in both adult and child variations of the narrative discourse). Therefore, such pronouns as interrogative, negative, relative, etc. are not mentioned here, although in principle they could act as referential.

[40] Without going into detail on grammatical category of gender in these languages, it should be mentioned that gender marking is not always arbitrary; there are rules and patterns based on certain phonological or semantic constraints in both languages (see Czagun 2007; Kauschke 2012 for German; Gladrow 1998 for Russian). Despite the presence of rules and patterns, gender is one of the most problematic categories in L2 acquisition, in particular for bilingual children whose exposure to the L2 starts late.

Table 1. Referential systems in Russian and German

Type of referential expression	**Abbreviation**	**German**	**Examples (M-masculine; F-feminine; N-neuter; SG-singular; PL-plural)**	**Russian**	**Examples (M-masculine; F-feminine; N-neuter; SG-singular; PL-plural)**
bare noun	bareN	**(+)**	*Katzen PL (cats F/PL)* *Wasser N/SG (water SG)*	**+**	*rebenok (child M/SG)* *ptica (bird F/SG)* *derevo (tree N/SG)* *koški (cats F/PL)*
indefinite noun phrase	indefNP	**+**	*ein Baum (a tree M/SG)* *eine Katze (a cat F/SG)* *ein Kind (a child N/SG)*	**(-)**	*(odin) rebënok (a child M/SG)* *(odna) koška (a cat F/SG)* *(odno) derevo (a tree N/SG)*
definite noun phrase	defNP	**+**	*der Baum (the tree M/SG)* *die Katze(the cat F/SG)* *das Kind (the child N/SG)* *die Katzen(the cats M/PL)*	**-**	- - - -
demonstrative noun phrase	demNP	**+**	*dieser/jener/**der** Baum* *(this/that tree M/SG)* *diese/jene/**die** Katze* *(this/that sun F/SG)* *dieses/jenes/**das** Kind* *(this/that child N/SG)* *diese/jene/**die** Katzen* *(these/those cats F/PL)*	**(+)**	*ėtot/tot/ - rebënok* *(this/that child M/SG)* *ėta/ta/ - koška* *(this/that cat F/SG)* *ėto/to/ - derevo* *(this/that tree N/SG)* *ėti/te/ - koški* *(these/those cats F/PL)*
possessive noun phrase	possNP	**+**	*sein/ihr/sein/ihr Baum* *(his/her/its/their tree M/SG)* *seine/ihre/seine/ihre Katze* *(his/her/its/their cat F/SG)* *sein/ihr/sein Kind* *(his/her/its/their child N/SG)* *seine/ihre/seine Katzen* *(his/her/its cats F/PL)*	**+**	*ego/ee/ego/ih rebënok* *(his/her/its/their child M/SG)* *ego/ee/ego/ih* *koška(his/her/its/their cat F/SG)* *ego/ee/ego/ih* *derevo(his/her/its/their derevo N/SG)* *ego/ee/ego/ih koški* *(his/her/its/their cats F/PL)*
personal pronoun	PRO (pers)	**+**	*er/sie/es /sie* *(heM/sheF/itN-SG, theyPL)*	**+**	*on/ona/ono /oni* *(heM/sheF/itN-SG, theyPL)*
demonstrative pronoun	DEM	**+**	*dieser/jener/**der*** *(this/that/~the M/SG)* *diese/jene/**die*** *(this/that/~the F/SG)* *dieses/jenes/**das*** *(this/that/~the N/SG)* *diese/jene/**die*** *(these/those/~the M/F/N/PL)*	**(+)**	*ėtot/tot/ -* *(this/that M/SG)* *ėta/ta/ -* *(this/that/ - F/SG)* *ėtot/tot/ -* *(this/that/ - N/SG* *ėti/te/ -* *(these/those/ - M/F/N/PL)*
possessive pronoun	POSS	**+**	*seiner/ihre/sein / seine* *(hisM/hersF/itsN-SG / theirsPL)*	**+**	*ego/ee/ego / ih* *(hisM/hersF/itsN-SG / theirsPL)*
indefinite pronoun	indefPRO	**+**	*etwas/jemand* *(something/somebody)*	**+**	*chto-to/kto-to* *(something/somebody)*
zero pronoun	0PRO	**(+)**	*(0er/0sie/0es / 0sie)* *(0he/she/it/they)*	**+**	*(0on/0ona/0ono / 0oni)* *(0he/she/it/they)*

As seen from Table 1, many types of referential expressions share the same features. Those which are marked with [+] sign in both languages can be assumed to not represent difficulties for Russian-German bilinguals. At the same time, there are several types of referential expressions which only partially share the same features or do not share them at all. These types of referential expressions are of particular interest and are presented in more detail.

4.2 Nominal systems in Russian and German

There is a fundamental difference between Russian and German, namely the formal grammatical category of definiteness overtly present in German in the form of definite articles and apparently absent in Russian, which lacks articles. Bare nouns in Russian can express definite as well as indefinite meanings, according to the information status of a referent or to other categories, such as specificity. According to Bunčić (2014), the discussion on definiteness as a category in Russian in comparison to German started about 30 years ago in works of Birkenmaier (1979) and Gladrow (1979), who tried to find regularities in Russian grammar that could function in the same way as definiteness in German.

Bunčić (2014) claims that the category of definiteness is not necessary for the description of the system of the Russian language. He analyzes several grammatical phenomena in Russian that are often associated with definiteness in other languages, but which are better explained through different categories other than definiteness. Thus, according to the principle of economy, it should be assumed that there is no definiteness as a category in Russian, not even a covert one (Bunčić 2014:93). This approach can be debated, but one thing seems to be clear: the concept of definiteness should be treated with caution in Russian or in other languages which do not have an overt marker of definiteness (for more details on the notion of definiteness see Chapter 2, section 2.2).

In Russian, the definiteness of a noun phrase can be determined partly through word order, which is considered to be relatively free in comparison with other languages (cf. Brun 2001; Geist 2010; Gladrow 1998; Junghanns & Zybatow 1997; King 1995; inter al.). However, definiteness as a grammatical category cannot be directly compared to the function of word order in Russian, as word order variations bear pragmatic functions and are needed for grounding information structure in the discourse (see Bunčić 2014). A similar conclusion can be found in Brun (2001), who claims that with regard to *unspecified* NPs (the term used by Brun for bare noun phrase) “the position within the sentence seems to affect the interpretation of these NPs” and that “the mechanisms behind the interpretation of unspecified NPs are based on the information structure of Russian sentences” (Brun 2001:126).

The syntactic position of noun phrases relative to the verb is often assigned to theme-rheme structure, comparable to topic-focus structure (cf. Birkenmaier 1979; Hajičová 1974; Išačenko 1966; Krylova & Khavronina 1988; Sgall 1972; Yokoyama 1986; inter al.) and, later on, to topic-comment and focus-background structures as separate levels of information

structure (cf. Geist 2010; King 1995; Junghanns & Zybatow 1997, 2009). As described and illustrated in Ionin (2002), preverbal noun phrases usually represent topics and post-verbal elements represent new information focus. This is especially true for introducing new referents into the discourse. Such distribution of information in a sentence is not ultimate though. It can vary under certain pragmatic conditions so that new information will be placed before the verb and the old information after the verb, depending on the implicit question behind it. As claimed by Geist (2010), the indefinite interpretation of bare NP in Russian can only occur if NP is a part of the comment).

It should be said as well that researchers often operate with single sentences as examples for how word order impacts the interpretation of noun phrases with respect to definiteness. However, in many cases there is a lot of space for interpretation. To illustrate this shortly, several examples[41] are given below.

(3) *Na dereve sidit ptica.*
on tree$_{N\text{-}SG:LOC}$ sit$_{IPFV\text{-}PRS:3SG}$ bird$_{F\text{-}SG:NOM}$
(A) bird is sitting on (the) tree.[42]

In the case of (3), the indefinite reading of the noun *ptica* (bird) is indeed the preferable one, as dictated by word order and given that only one referent is present in this sentence. But again, this reading is not exclusive. Let's assume that the intonation of this sentence is not neutral, but the first constituent is focused with stress. This could be a legitimate answer to the question: *Where is the bird sitting? ON THE TREE the bird is sitting.* In this case, only the definite reading of the noun *ptica* is possible, despite the fact that it is postverbal.

(4) *Ptica uvidela rybu.*
bird$_{F\text{-}SG:NOM}$ see$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$
(A/The) bird saw (a/the) fish.

Example (4) is even more complex. Here, both referents can be either definite or indefinite, depending on a number of contextual factors. In fact, there are four different interpretations of this sentence[43]:

a. A bird saw a fish. (What happened (on the picture)?)
b. A bird saw the fish. (Who saw the fish?)
c. The bird saw a fish. (Whom saw the bird?)
d. The bird saw the fish. (What happened between the bird and the fish?)

Thus, without a context or an implicit question (examples of possible questions are given in brackets) generating it, it is extremely difficult to interpret the in/definiteness of referents

[41] All examples in the present work are annotated using abbreviations from the Leipzig glossing rules (2008).
[42] Those elements which are obligatory in English but do not exist or are omitted in Russian (e.g., articles, 0PROs, etc.) are put into brackets.
[43] For better comparability, the same gender patterns and human/non-human distinctions as in the source languages will be used in translations into English.

based solely on word order. In addition, the prosody plays an important role in the interpretation of the sentence and is widely applied in spoken discourse. However, in the written form such a sentence does not give enough information for a unique interpretation. Therefore, the context is indispensable.

Examples based on sequences of sentences as part of an authentic discourse or examples from different corpora can show the complex nature of Russian word order more clearly. Consider the following example:

(5) *Na dereve sidit ptica. Ptica uvidela rybu.*
on tree$_{N\text{-}SG:LOC}$ sit$_{IPFV\text{-}PRS:3SG}$ bird$_{F\text{-}SG:NOM}$ bird$_{F\text{-}SG:NOM}$ see$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$
Ona schvatila rybu i uletela.
she$_{F\text{-}3SG:NOM}$ grab$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$ and fly.away$_{PFV\text{-}PST:SG:F}$
(A) bird is sitting on the tree. (The) bird saw (a) fish. She grabbed (the) fish and flew away.[44]

Example (5) demonstrates that the same sentences presented above can be interpreted unambiguously, based on the context. Thus, the role of context for determining the information status of referents is very prominent. The word order, on the other hand, is certainly a factor to be taken into account, but it is not the only criterion for determining the information status of a referent in the discourse.

Going back to the use of bare nouns, it should be pointed out that bare noun (bareN) is used in German as well, e.g., as a plural indefinite, with mass or abstract nouns, with predicate nouns, as part of fixed (prepositional) phrases, idiomatic expressions, different syntactic constructions, etc. (see Helbig & Buscha 2001; Zifonun et al. 1997 for more details).[45]

Consider the following examples:

(6) *Auf der Straße waren Kinder.*
on the$_{DEF\text{-}F\text{-}SG:DAT}$ street$_{F\text{-}SG:DAT}$ be$_{PST:3PL}$ child$_{N\text{-}PL:NOM}$
There were children on the street.

(7) *Sie ist Lehrerin.*
she$_{F\text{-}3SG:NOM}$ be$_{PRS:3SG}$ teacher$_{F\text{-}SG:NOM}$
She is (a) teacher.

(8) *Er trinkt Wasser.*
he$_{M\text{-}3SG:NOM}$ drink$_{PRS:3SG}$ water$_{N\text{-}SG:ACC}$
He is drinking water.

[44] In analogy with the above, pronouns are translated into English with the same gender they exhibit in the source language, even if in English they would be usually replaced by / translated with the “it”-form for non-human discourse referents.

[45] In German, bare nouns are usually referred to as nouns with a “null article” that “replaces” a definite or indefinite article. In the present study, only the indefinite reading of bare nouns is relevant, for cases when bare nouns are used in order to introduce discourse characters in plural, e.g., *Vögelchen* (baby-birds).

(9) *Der Junge hat Hunger.*
theDEF-M-SG:NOM boyM-SG:NOM havePRS:3SG hungerM-SG:ACC
The boy is hungry.

However, most of the noun phrases with indefinite reading in German are usually marked by an indefinite article in the singular (indefNP) as demonstrated below:

(10) *Auf dem Baum sitzt ein Vogel.*
on theDEF-M-SG:DAT treeM-SG:DAT sitPRS:3SG aINDF-M-SG:NOM birdM-SG:NOM
A bird is sitting on the tree.

(11) *Ein Junge sitzt auf dem Stuhl.*
aINDF-M-SG:NOM boyM-SG:NOM sitPRS:3SG on theDEF-M-SG:DAT chairM-SG:DAT
A boy is sitting on the chair.

Interestingly, in Russian, as shown in Table 1, such noun phrases as *odna koshka (oneF.SG catF.SG)* or *odin malčik (oneM.SG boyM.SG)* are also possible under certain circumstances, although these forms are not grammaticalized as indefinite noun phrases. A numeral *one* can indeed be used as a common numeral, e.g., *one cat and two dogs*, and as a kind of reduced numeral form, which is sometimes called “an emerging indefinite article” (Ionin 2007), “a specificity marker” (Gorishneva 2009), or “quasi-determiner” (Geist 2010). The characteristics of this particular form are that it generally marks specificity on indefinites, it is always unstressed, and it takes wide scope, whereas numerals admit both wide and narrow scopes. In addition, it is used in contexts where numerals would be inappropriate (Gorishneva 2009). In this sense, Russian is an example of a language “of the first stage of the article development” (Gorishneva 2013:303), which contrasts to languages where the article system is fully developed, such as English or German.

For example, let us assume that in sentences such as (12) and (13) the referents have just been introduced into the discourse. In Russian they can be used with or without a specificity marker, but in both cases, they are translated into English not by means of a numeral but by means of an indefinite article:

(12) *Kak-to raz (odin) mal’čik pošel poguljat’.*
some time (oneM-SG:NOM) boyM-SG:NOM goPRF-PST:3SG:M walkINF-IPFV
Once (a) boy went for a walk.

(13) *Včera (odna) devočka nashla (odnu) košku.*
yesterday (oneF-SG:NOM) girlF-SG:NOM findPRF-PST:3SG:F (oneF-SG:ACC) catF-SG:ACC
Yesterday (a) girl found (a) cat.

The use of a specificity marker is therefore optional in these types of sentences and might depend also on the type of discourse. In German, the use of the indefinite article in the same context is obligatory:

(14) *Eines Tages ist ein Junge spazieren gegangen.*
oneM-SG:GEN dayM-SG:GEN beAUX-PRS:3SG aINDF-M-SG:NOM boyM-SG:NOM walkINF goPTCP-PST
One day a boy went for a walk.

(15) *Gestern hat ein Mädchen eine Katze gefunden.*
yesterday have$_{AUX\text{-}PRS:3SG}$ a$_{INDF\text{-}N\text{-}SG:NOM}$ girl$_{N\text{-}SG:NOM}$ a$_{INDF\text{-}F\text{-}SG:ACC}$ cat$_{F\text{-}SG:ACC}$ find$_{PTCP\text{-}PST}$
Yesterday a girl found a cat.

As for the definite reading of noun phrases in Russian and German, it should be clear that in Russian, in order to be interpreted as definite, a respective referent has to be previously introduced into the discourse. The same would apply to German, the difference being that in German the definite article helps to unambiguously interpret the referent as definite. Let us take example (5), presented above in Russian, now in German:

(16) *Auf dem Baum sitzt ein Vogel.*
on the$_{DEF\text{-}M\text{-}SG:DAT}$ tree$_{M\text{-}SG:DAT}$ sit$_{PRS:3SG}$ a$_{INDF\text{-}M\text{-}SG:NOM}$ bird$_{M\text{-}SG:NOM}$
Der Vogel hat einen Fish gesehen.
the$_{DEF\text{-}M\text{-}SG:NOM}$ bird$_{M\text{-}SG:NOM}$ have$_{AUX\text{-}PRS:3SG}$ a$_{INDF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$ see$_{PTCP\text{-}PST}$
Er hat den Fisch geschnappt
he$_{M\text{-}3SG:NOM}$ have$_{AUX\text{-}PRS:3SG}$ the$_{DEF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$ grab$_{PTCP\text{-}PST}$
und ist weggeflogen.
and be$_{AUX\text{-}PRS:3SG}$ fly.away$_{PTCP\text{-}PST}$
A bird is sitting on the tree. The bird saw a fish. He grabbed the fish and flew away.

Again, without a context, only the German sentences would provide clear evidence about which referents should be treated as definite. In Russian, the context is needed in order to clearly interpret the information status of referents. Geist (2010) analyzed different possibilities of definite reading in Russian in one of her studies. She concludes that “the definite interpretation of bare NPs arises under the same conditions under which the definite article is used in English or German” (Geist 2010:224). Thus, the difference is only in the lack of overt definiteness marking in Russian bare noun phrase.

According to Brun (2001), in Russian the word order does not play a role any longer if a noun phrase is disambiguated by an additional lexical (e.g., in case of demonstrative noun phrase (demNP) and a possessive noun phrase (possNP), where the definiteness of a noun phrase is clarified through demonstrative or possessive determiners) or morphosyntactic means (e.g., through verbal morphology). This means that in some types of referential expressions definiteness is coded inherently (see Leiss 2000, see also Chapter 2, section 2.2). However, the inherent definiteness has to be acquired as well. Although children between 2 and 3 years old are already sensitive to the correlation of word order and (in)definiteness of a noun phrase in Russian and can successfully implement this correlation in their speech, they “rely more at first on the word order/(in)definiteness correlation than on lexical marking available in Russian” (Brun 2005:78). This basically means that for Russian children at this age the word order is more essential than the inherent (in)definiteness marked lexically and that they start to account for other expressions of definiteness only later on.

As for the demonstrative noun phrase (demNP), one of the noun phrases marked lexically for definiteness, it is present in both Russian and German. At first glance, it indeed seems to be comparable in both form and function. Consider the following examples:

(17) *U ėtoj devočki est' sestra,*
at this$_{F\text{-}SG:GEN}$ girl$_{F\text{-}SG:GEN}$ be$_{PRS:3SG}$ sister$_{F\text{-}SG:NOM}$
a u toj devočki brat.
and at that$_{F\text{-}SG:GEN}$ girl$_{F\text{-}SG:GEN}$ brother$_{M\text{-}SG:NOM}$
This girl has (a) sister and that girl (has) (a) brother.

(18) *Dieses Mädchen hat eine Schwester*
this$_{N\text{-}SG:NOM}$ girl$_{N\text{-}SG:NOM}$ have$_{PRS:3SG}$ a$_{INDF\text{-}F\text{-}SG:ACC}$ sister$_{F\text{-}SG:ACC}$
und dieses Mädchen hat einen Bruder.
and this$_{N\text{-}SG:NOM}$ girl$_{N\text{-}SG:NOM}$ have$_{PRS:3SG}$ a$_{INDF\text{-}M\text{-}SG:ACC}$ brother$_{M\text{-}SG:ACC}$
This girl has a sister and that girl has a brother.

There are two things to pay attention to here: first, demNPs are not very frequent in narrative discourse since appropriate (mainly contrastive) contexts are very limited; second, distal demonstratives *jener/jene/jenes* in German and *tot/ta/to* in Russian (translated as *that*) are even more rare in a spoken language as these forms are reserved for more formal contexts or idiomatic expressions in both languages (see Kordić 2002). Beyond that they have different functions in Russian and German. The "classical", or strong, demonstratives are the distance-marked demonstratives: proximal *ėtot/ėta/ėto* in Russian and *dieser/diese/dieses* in German (translated as *this*) vs. distal *tot/ta/to* and *jener/jene/jenes* (translated as *that*) in Russian and German respectively. Whereas in Russian the two demonstrative pronouns indicate distance contrast (Russian is a so-called *two-way contrast language*, according to Diessel's classification), in German they are distance-neutral, i.e., they do not contrast with each other. Moreover, the distal *jene/jenes/jener* is rarely used in general, and it is argued that in contemporary German it does not indicate distance contrast anymore (Diessel 1999, 2005; Himmelmann 1997). This was demonstrated in example (18), where proximal demonstrative *dieser* was used in both noun phrases for the same purpose. It should be said, however, that also in languages that do express a two-way distance contrast the contrastive use of demonstratives is not obligatory (Diessel 1999, 2005).

At the same time, in German there is another option for indicating contrast: the stressed *der/die/das* determiner. This kind of overtly definite noun phrase is often classified as a demonstrative noun phrase because "these expressions are commonly used to focus the hearer's attention on entities in the surrounding situation, which is not what speakers usually do with definite markers" (Diessel 2005:171). For example, the sentence presented in (19) could express the same pragmatic content as shown in (18) using a stressed definite marker:

(19) *DAS Mädchen hat eine Schwester*
THE$_{DEF\text{-}N\text{-}SG:NOM}$ girl$_{N\text{-}SG:NOM}$ have$_{PRS:3SG}$ a$_{INDF\text{-}F\text{-}SG:ACC}$ sister$_{F\text{-}SG:ACC}$
und DAS Mädchen hat einen Bruder.
and THE$_{DEF\text{-}N\text{-}SG:NOM}$ girl$_{N\text{-}SG:NOM}$ have$_{PRS:3SG}$ a$_{INDF\text{-}M\text{-}SG:ACC}$ brother$_{M\text{-}SG:ACC}$
This girl has a sister and that girl has a brother.

However, such phrases require a specific context and are not frequent in the narrative discourse, especially in child narrative discourse.

Possessive noun phrases (possNP) are not frequent in child narrative discourse either; therefore, no detailed presentation of this type of referential expression is given here. As for the form and function of this referential expression in Russian and German, possessive noun phrases follow the same principles in both languages as can be seen in the examples (20) and (21) below:

(20) *Eë sestra očen' krasivaja.*
her$_{F\text{-}SG:NOM}$ sister$_{F\text{-}SG:NOM}$ very beautiful
Her sister (is) very beautiful.

(21) *Ihre Schwester ist sehr hübsch.*
her$_{F\text{-}SG:NOM}$ sister$_{F\text{-}SG:NOM}$ be$_{PRS:3SG}$ very beautiful
Her sister is very beautiful.

4.3 Pronominal systems in Russian and German

As far as the pronominal systems of Russian and German are concerned, on the surface they look similar: in both languages there are the same types of pronouns. Whereas indefinite and possessive pronouns do not represent a particular interest for the narrative discourse, being extremely rare in this type of discourse and having more or less the same properties in both languages, personal (PRO), demonstrative (DEM), and zero pronouns (0PRO) need to be observed more closely. Although they are present in both languages, their use and distribution are quite different.

The most frequent type of pronoun referring to a discourse referent in adult discourse, as well as partially in child discourse, is the personal pronoun (PRO). Its referential function is mainly to provide thematic or topic continuity, according to various studies in child narrative discourse and theoretical research (cf. Averintseva-Klisch & Consten 2007; Bamberg 1987; Comrie 1998; Diessel 1999; Hickmann 2003; Karmiloff-Smith 1981; Karmiloff & Karmiloff-Smith 2002; Lambrecht 1994; inter al.).[46] The examples (22) and (23) demonstrate the parallel structures in Russian and German in the use of personal pronouns:

(22) *Na dereve sidit ptica.*
on tree$_{N\text{-}SG:LOC}$ sit$_{IPFV\text{-}PRS:3SG}$ bird$_{F\text{-}SG:NOM}$
Ona uvidela rybu i zachotela eë s-est'.
she$_{F\text{-}3SG:NOM}$ see$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$ and want$_{PFV\text{-}PST:SG:F}$ she$_{F\text{-}3SG:ACC}$ eat$_{INF\text{-}PFV}$
(A) bird is sitting on (the) tree. She saw (a) fish and wanted to eat her.

(23) *Auf dem Baum sitzt ein Vogel. Er hat*
on the$_{DEF\text{-}M\text{-}SG:DAT}$ tree$_{M\text{-}SG:DAT}$ sit$_{PRS:3SG}$ a$_{INDF\text{-}M\text{-}SG:NOM}$ bird$_{M\text{-}SG:NOM}$ he$_{M\text{-}3SG:NOM}$ have$_{PRS:3SG}$
einen Fisch gesehen und wollte ihn aufessen.
a$_{INDF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$ see$_{PTCP\text{-}PST}$ and want$_{PST:3SG}$ he$_{M\text{-}3SG:ACC}$ eat.up$_{INF}$
A bird is sitting on the tree. He saw a fish and wanted to eat him.

[46] There are also researchers who assign a neutral function, neither topical nor non-topical, to personal pronouns with regard to reference (cf. Ahrenholz 2007; Bosch, Katz, & Umbach 2007; Kaiser 2011; Zifonun, Hoffmann, & Strecker 1997, as cited in Ellert 2013).

So far, there are no differences other than in gender marking, since in Russian *bird* and *fish* are feminine, and in German they are both masculine. In both languages personal pronouns can be used for establishing topic continuity / maintaining discourse referents.

However, whereas “free pronouns are the most important referential device in Russian”, according to Kibrik (2011:274), in German there is another type of pronoun competing with PRO, especially in child discourse, – that is a demonstrative pronoun which is homomorphous with the definite article *der/die/das*. This form is often called *d-pronoun* and is to be distinguished from distance-marked demonstratives. As pointed out in Diessel (2006), definite articles emerged from demonstratives, thus it is not surprising that in languages like German there are demonstratives which have the same form as definite articles (for differences in functions of demonstratives and definite articles see Comrie 1998; Diessel 1999; Hawkins 1978; Himmelmann 1996, 1997; Lyons 1999, as cited in Diessel 2006).[47]

From different studies on monolingual children and adults, it is known that the use of distance-marked demonstratives *ėtot/ėta/ėto* and *tot/ta/to* in Russian, *dieser/diese/dieses* and *jener/jene/jenes* in German, adnominal and pronominal ones, is very restricted in both Russian and German in the narrative discourse, as was already pointed out in describing demonstrative noun phrases. On the other hand, the d-pronoun emerges very early and is very frequent in child narrative discourse (see Bittner 2007; Gagarina 2008; Gülzow & Gagarina 2007; Kuehnast, Bittner, Gagarina, & Gülzow 2007). The d-pronoun seems to have a default status in child language, i.e., for children this type of pronoun does not have any specific function besides being a pronoun (see Bittner 2010:81). In adult narrative discourse, d-pronouns, in contrast to child discourse, are almost completely replaced by personal pronouns.

An extensive use of DEMs in child narrative discourse was already demonstrated in the introduction in example (1), where not a single personal pronoun was used in the story told by a 4-year-old child. Another example presented below demonstrates that older children also use d-pronouns extensively, but they do so along with personal pronouns:

(24) (md168, 6;01, German monolingual child)

Da sieht er ein [*] [: einen] Fisch. Und fliegt dahin und holt (e)s ihn. Und dann esst [*] [:isst] er den Fisch. Aber hier, als er dann nach Haus ist, dann kommt der Fuchs. Und der mag den auch gerne essen. Und dann schlaegt er sein(en) Maul. Hm, es schmeckt so lecker. Hier springt der hoch. Und der kriegt es aber nicht. Weil er so klein ist. Da lasst [*] [: laestt] er die fallen. Und dann rennt er dahin. Hier hat er den dann. Aber der Vogel ist schneller. Hier hat er den weggenommen, den Fisch. Und der findet (e)s ganz gemein, der Fuchs.

[47] A wide discussion on further features of demonstrative pronouns cannot be held here. However, as I find this topic particularly interesting, I would like to name additional sources of research on demonstratives in the discourse: the works of Diessel (1999, 2006), Fillmore (1997), Himmelmann (1996), Levinson (1983, 2004), among others, for different languages (including German) as well as those of Berger (1991), Kordić (2002), Padučeva (1982), Šeljakin (1986), and Weiss (1988), among others, for Russian.

(There hePRO sees a fish. And 0PRO flies there and 0PRO takes itPRO for himPRO. And then hePRO eats the fish. But here, as hePRO goes home then, then the fox comes. And heDEM likes also to eat itDEM. And then hePRO beats his mouth. Hm, it is so tasty. Here heDEM jumps up. But heDEM doesn't get itPRO. Because hePRO is so small. There hePRO lets itDEM fall down. And then hePRO runs there. Here hePRO has itDEM then. But the bird is faster. Here hePRO took itDEM away, the fish. And heDEM finds it nasty, the fox.)

This example shows that, although at this age personal pronouns and demonstratives are used in the same type of discourse, their use does not necessarily reflect certain referential preferences. The child seems to use both types of referential expressions interchangeably in similar contexts. Without going into too many details at this point, it should only be stressed that the grammatical functions of d-pronouns and personal pronouns in child discourse in German are underspecified and that d-pronouns are used to a larger extent than in adult discourse.

With respect to the zero pronoun (0PRO), also called *zero form*, *zero anaphora*, *zero reference,* or *zero/null subject*[48], in Russian and German, it should be said that, although 0PRO is proper to both languages, it can be used in a much broader context in Russian. According to Kibrik (2011), the fundamental difference between Russian and German which influences the referential systems of these languages is "the greater referential potential of verb inflections" (Kibrik 2011:274). In particular, one of its consequences is that zero reference in Russian is used to a much larger degree than in Germanic languages. Indeed, in Russian, subjects as well as objects can be omitted under certain pragmatic conditions, e.g., if a referent is already established and highly activated and the context refers "to either an *ongoing event*, to a *state*, or to events that occurred *in the immediate past*, or are intended to happen in the near future, i.e., *intentional*" (Gordishevsky & Avrutin 2004:189). In the study of Gordishevsky and Avrutin (2004), for example, it was shown that also very young children, 1;9-2;0 and 2;0-2;6 years old, make omissions of both subjects and objects in a partly adult-like manner.[49]

Thus, in Russian, subjects in independent sentences can be omitted (but do not have to be) if the reference is clear and the discourse referent is highly activated, as shown in the following example:

[48] The term "zero/null subject" is used only with regard to null subject languages, otherwise it is misleading: objects can also be omitted under certain circumstances, whereas "zero/null subject" obviously refers to subjects only. In the framework of the study, I prefer to use the term "zero pronoun" referring to omitted subjects or objects, since in the analyzed languages only constituents that can be pronominalized can be omitted, i.e., zero pronoun is used as "a placeholder for pronouns that does not need to be mentioned overtly" (Karmiloff & Karmiloff-Smith 2002:168).

[49] In general, according to Hyams' proposal (1986) "children all begin with the assumption that their language allows null subjects (initial [+ pro-drop] value). Children acquiring languages that do not allow null subjects ([- pro-drop] languages) would then have to reset this parametric value" (Hickmann 2003:112).

(25) *Na dereve sidit ptica. Ø Uvidela rybu.*
On tree$_{N\text{-}SG:LOC}$ sit$_{IPFV\text{-}PRS:3SG}$ bird$_{F\text{-}SG:NOM}$ see$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$
Ø Zachotela eë s-est'.
want$_{PFV\text{-}PST:SG:F}$ she$_{F\text{-}3SG:ACC}$ eat$_{INF\text{-}PFV}$
A bird is sitting on the tree. (She) saw a fish. (She) wanted to eat her.

In German narrative discourse, the same sequence of sentences would not allow omitting subjects in the main clause:

(26) *Auf dem Baum sitzt ein Vogel.*
on the$_{M\text{-}SG:DAT}$ tree$_{M\text{-}SG:DAT}$ sit$_{PRS:3SG}$ a$_{M\text{-}SG:NOM}$ bird$_{M\text{-}SG:NOM}$
Er hat einen Fisch gesehen.
he$_{M\text{-}3SG:NOM}$ have$_{PRS:3SG}$ a$_{M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$ see$_{PTCP\text{-}PST}$
Er wollte ihn aufessen.
he$_{M\text{-}3SG:NOM}$ want$_{PST:3SG}$ he$_{M\text{-}3SG:ACC}$ eat-up$_{INF}$
A bird is sitting on the tree. He saw a fish. He wanted to eat him.

Russian in this sense is not a classical *pro-drop* or a *null-subject* language where subjects are dropped obligatorily under the pragmatic conditions described above, as e.g., in a number of Romance and other Slavic languages (Kibrik 2001:1127). However, it is not a *non-pro-drop* language either as, e.g., German or English. Because of its specific properties, Russian is often called a *weak pro-drop* language (Gagarina 2007; see also Franks 1995; Lindseth 1998; inter al. for further discussion). In general, in different languages there are specific conditions when, if at all, the subject or the object of a sentence can be omitted. Kibrik (2001) claims that all languages use zero pronouns to some degree. What both Russian and German languages have in common with respect to the use of zero forms is the omission of subjects in coordinate clauses:

(27) *Ona uvidela rybu i Ø zachotela eë s-est'.*
she$_{F\text{-}3SG:NOM}$ see$_{PFV\text{-}PST:3SG:F}$ fish$_{F\text{-}SG:ACC}$ and want$_{PFV\text{-}PST:SG:F}$ she$_{F\text{-}3SG:ACC}$ eat$_{INF\text{-}PFV}$
She saw (a) fish and wanted to eat her.

(28) *Er hat einen Fisch gesehen*
he$_{M\text{-}3SG:NOM}$ have$_{AUX\text{-}PRS:3SG}$ a$_{INDF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$ see$_{PTCP\text{-}PST}$
und Ø wollte ihn aufessen.
and want$_{PST:3SG}$ he$_{M\text{-}3SG:ACC}$ eat.up$_{INF}$
He saw a fish and wanted to eat him.

It should also be mentioned, however, that, in spoken language, omitting subjects and even objects is possible also in German, on the condition that they are topical, as was pointed out by Müller and Halk (2001) (see Paradis & Navarro 2003). This can be demonstrated most clearly in question-answer contexts:

(29) *Was macht der Vogel? Ø Fliegt weg.*
what do$_{PRS:3SG}$ the$_{DEF-M-SG:NOM}$ bird$_{M-SG:NOM}$? Fly$_{PRS:3SG}$ away.
What is the bird doing? (He) is flying away.

(30) *Hat der Vogel den Fisch gesehen?*
have$_{AUX-PRS:3SG}$ the$_{DEF-M-SG:NOM}$ bird$_{M-SG:NOM}$ the$_{DEF-M-SG:ACC}$ fish$_{M-SG:ACC}$ see$_{PTCP-PST}$?
Ø Hat er nicht gesehen.
have$_{AUX-PRS:3SG}$ he$_{M-3SG:NOM}$ not see$_{PTCP-PST}$
Did the bird see the fish? He didn't see (it).

To summarize briefly the use of pronominal devices in Russian and German, namely of personal, demonstrative, and zero pronouns, although Russian and German exhibit the same types of pronouns, only personal pronouns and classical demonstratives seem to be comparable in form and function, at least in the adult narrative discourse. The presence of another type of demonstrative in German, the d-pronoun, influences not only the function of demonstratives but also the distribution between demonstratives and personal pronouns in child discourse: in German, two concurring types, personal pronoun and d-pronoun, can be used in contexts where only personal pronouns would be used in Russian. The same would apply to the use of zero pronouns in Russian and German: the distribution is different, given that in Russian they can be used in more contexts than in German.

Given the variations within the referential systems in Russian and German as well as differences in encoding definiteness, it was shown that the types of referential expressions in the analyzed languages can differ not only in form but also in function. This knowledge builds a premise for hypotheses made about grammatical and pragmatic use of referential expressions in monolingual and bilingual children in that the differences in referential systems might influence the use of referential expressions by bilingual children. The corresponding research questions and hypotheses are formulated in Chapter 5.

5 Research questions and hypotheses

The overall aim of the present study is to find out how monolingual and bilingual children cope with referential choice in narrative discourse and whether they demonstrate similar performance and development with regard to the use of reference, compared within and between languages. Therefore, the study focuses on the examination of the *grammatical* and *pragmatic* use of referential expressions used for encoding discourse referents in picture-based narratives of Russian-German bilinguals as well as Russian and German monolingual children in the age range 4 to 6 years (in three age groups: 4-, 5-, and 6-year-olds).

The grammatical use of referential expressions is determined by accounting for different types of expressions, their linguistic forms, and distribution in the analyzed languages. The "purely" grammatical use is investigated in detail in order to see what processes are still going on in the analyzed age range with regard to the specific types of referential expressions as well as to look for possible crosslinguistic[50] interactions in bilingual children.

The pragmatic use of referential expressions is determined by the use of referential expressions for introducing, maintaining, and reintroducing discourse referents with regard to their information status at a certain point of the discourse defined as *new, given, accessible.* This establishes the relation between degrees of cognitive activation, referential distance, and information statuses, claimed to be one of the major factors influencing referential choice (following Chafe 1987 and Lambrecht 1994, see more details in Chapter 2, section 2.2). As a reminder, in the present study the referential distance to the antecedent is measured linearly, whereas the unit of analysis is a clause, not a sentence. This way of analysis is considered appropriate for dealing with referential choice in the given discourse type. Moreover, clause-based measurement of referential distance allows for better comparison between Russian and German, given their morpho-syntactic differences in the use of zero reference.

The monolingual and bilingual performance and development in the grammatical and pragmatic use of referential expressions over age (within and across age groups) are analyzed intra- and crosslinguistically, i.e., comparing monolinguals and bilinguals within one language as well as comparing bilingual performance and development in both of their languages, and comparing monolingual performance and development across languages (Russian and German). Developmental patterns and changes in the analyzed age range are also investigated in detail. An additional goal is to find out how bilingual children cope with the referential choice in each of their languages and whether there are any interactions between the languages on a grammatical or pragmatic level. The different ways of comparisons are displayed in Figure 2.

[50] The term *crosslinguistic* may refer to two different types of comparisons: 1) comparisons across languages in monolingual contexts (e.g., analyzing performance of monolingual children of different languages), and 2) comparisons across languages in bilingual contexts (e.g., analyzing performance of the same children in different languages). The interpretation is mostly evident from the context.

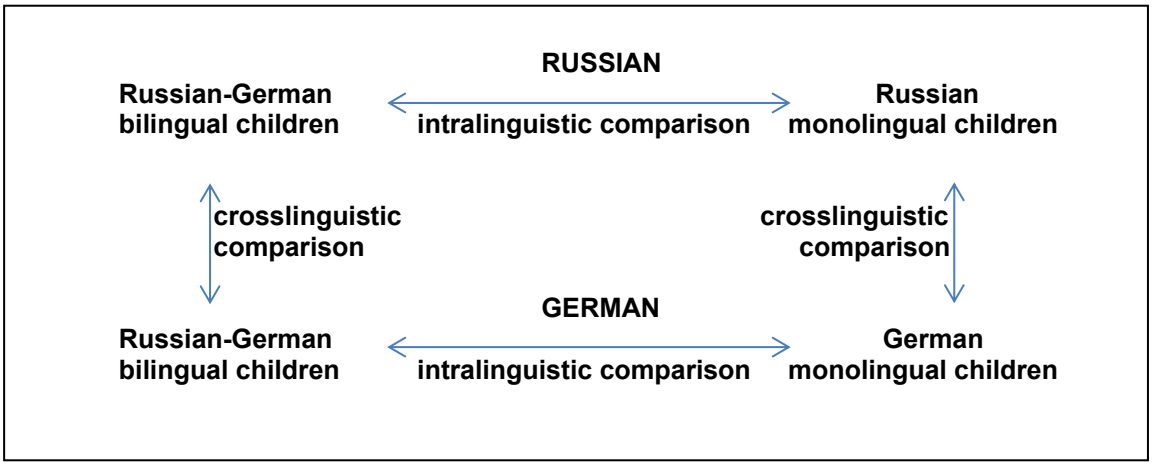


Figure 2. Data analysis within and across languages

For more transparency, the research questions, hypotheses, and respective predictions have been grouped and are presented in the next two subsections, separately for the grammatical use of referential expressions and for their pragmatic use.

5.1 Grammatical use of referential expressions

Three groups of research questions (RQs) and hypotheses (Hs) with respect to the grammatical (gr) use of referential expressions are formulated and explained below.

The first group of RQs and Hs concerns the general distribution of referential expressions in monolingual and bilingual children as well as possible crosslinguistic interactions in bilinguals.

RQgr1: **a)** What types of referential expressions are used by monolingual and bilingual children in Russian and German (in the whole samples, within and across age groups) and how are they distributed?
b) Are there any crosslinguistic interactions in bilingual children, and, if there are, in which language, and what types of referential expressions are affected? Are such crosslinguistic interactions age-specific?

Hgr1: **a)** Monolingual as well as bilingual children aged 4 to 6 use the whole range of different types of referential expressions within the referential systems of the target languages. The overall distribution is stipulated by the general constraints of the narrative discourse. This means that children use predominantly those types of referential expressions that are typical for the picture-based narratives, but they also occasionally use less typical expressions.
b) Minor crosslinguistic interactions can appear in both analyzed languages, given that Russian and German languages exhibit numerous differences in form and function of referential expressions. At the same time, the interactions, if there are any, are expected to be insignificant and age specific.

The general hypothesis on the use of the whole range of referential expressions is based on the previous research in the domain of reference in narratives of monolingual children. It suggests that already 3-4-year-old Russian and German monolinguals do that in this type of discourse. Along with bareNs in Russian and in/defNPs in German, pronominal types of referential expressions are used in both languages. PROs in Russian emerge very early and are very frequent in child narrative discourse, being used anaphorically as early as at age 3 (see Gagarina 2008). However, the studies on German show that German monolinguals reorganize their system of reference by age 3-4 (see Bittner 2010; Gülzow & Gagarina 2007), when PROs supervene, completing their referential system and gradually reducing the use of DEMs (d-pronouns *der/die/das*).

The same prediction concerning bilinguals is based on the hypotheses of bilingual language acquisition, discussed in Chapter 2, section 2.3. Given that in the present study only bilinguals with age of L2 onset before or around age 3 are investigated and that even the youngest 4-year-old bilinguals have had at least one year of exposure to L2 German prior to the data collection, the basic prediction is that bilingual children operate with a wide range of types of referential expressions in each of their languages by age 4, following the 2L1 acquisitional path in each of their languages (see Chilla 2011; Meisel 2008; Paradis et al. 2011; inter al).

This implies that 4- to 6-year-old monolingual and bilingual children use a comparable range of referential expressions proper to the target languages:

- most frequently bareNs, PROs, and 0PROs in Russian; in/defNPs, DEMs, PROs, and 0PROs in German;[51]
- a small number of possNPs, demNPs as well as indefPROs in both languages, if at all, as these types of referential expressions are generally rare in this type of narrative discourse.

The prediction that minor crosslinguistic interactions may appear in both languages, is based on the *non-autonomous version* (Hulk & Müller 2000; Müller & Hulk 2001) of the *Separate Development Hypothesis* (*SDH*, De Houwer 1990), adopted for this study. According to this version of SDH, grammatical systems in bilingual children who are exposed to the L2 from early on are separated from the onset. Furthermore, bilingual language acquisition follows the same course as L1 acquisition, but minor crosslinguistic interactions are possible in certain linguistic domains (see more details in Chapter 2, section 2.3). Given that the investigated languages differ in encoding in/definiteness (in German the definiteness is marked overtly through indefinite and definite articles which are absent in Russian), it is assumed that crosslinguistic interactions may appear alongside target types of referential

[51] In monolingual data from the ZAS acquisition project (Gülzow & Gagarina 2007) taken as a basis for this prediction, only zero subjects in independent clauses were coded as zero pronouns, resulting in an absence of zero pronouns in German. In the present study, all cases of topic-drop, including omitted pronouns in coordinate clauses, were coded as zero pronouns (0PROs) in bilingual as well as in monolingual narratives. Therefore, the prediction is extended to the use of 0PROs in both languages.

expressions and that they are bound to the concept of definiteness (see Chapter 2, section 2.2. and Chapter 4 for more details).

As also known from the previous research, children prefer morphological transparency, i.e., in early childhood they acquire languages faster if they are morphologically rich and transparent (Xanthos et al. 2011). This may affect the system of reference to a certain degree, resulting in a more extensive use of the types of referential expressions in one language that are widely used in another language as well, at least temporarily. Thus, once they acquire a more transparent means of marking definiteness in one of their languages, bilingual children might try to apply the same principles in another language, on the condition that similar devices are available in that language and can be used for this purpose. Bearing this in mind and considering the typological characteristics of Russian and German referential systems, minor interactions can be expected in both languages.

Specific predictions about possible crosslinguistic interactions:

- In Russian, bilingual children might try to grammatically mark indefiniteness resulting in the use of noun phrases with a specificity marker, such as *odna ptica (oneF bird)*, which are possible in Russian, and are analogous to indefNPs in German. As Russian does not offer an alternative to the definite article for building a defNP, it is not expected that children transfer this feature directly into Russian. In addition, along with PROs, bilinguals might start to use DEMs *ėtot/ėta/ėto* (in analogy to the German DEMs) more extensively in Russian, whereas monolinguals usually do not use DEMs in this type of narrative discourse at all.
- In German, bilingual children might occasionally use bareNs analogously to Russian, where bareNs can be both definite and indefinite (given that the use of bareNs is also possible in German in certain contexts). With regard to the pronominal reference, bilingual children might use more PROs and 0PROs in German than monolingual children, who, in their turn, are expected to continuously use more DEMs (d-pronouns *der/die/das*) than PROs.

Crosslinguistic interactions, if there are any, can be expected especially in the youngest age group, as at this age the referential systems are not yet stable enough and may still be in the process of reorganization. On the other hand, it cannot be ruled out that older bilingual children develop language dominance (most often in their L2), and, therefore, certain crosslinguistic interactions might occur in the older age groups in Russian as well.

The next group of RQs and Hs concerns **intralinguistic comparisons** of monolingual and bilingual samples within and across age groups.

RQgr2: a) Do bilingual and monolingual children show similar performance and development over age with regard to the grammatical use of referential expressions in Russian and German, compared intralinguistically?

b) What are the developmental patterns in bilinguals and monolinguals? Are there any significant developmental changes between age 4 and 6, and do they occur at the same time in monolinguals and bilinguals?

Hgr2: **a)** There are no significant differences between bilingual and monolingual performance and development over age. Thus, compared intralinguistically, bilingual children are expected to demonstrate language-specific performance and development (developmental patterns) similar to monolingual children.

b) The use of different types of referential expressions in narrative discourse changes over age. The developmental patterns go in the same directions in monolinguals and bilinguals. Some developmental changes are expected to be significant, and they occur at the same time in monolingual and bilingual children.

The hypotheses on the similar performance and development in monolinguals and bilinguals are based on the same assumptions regarding language acquisition in bilinguals with the 2L1 acquisition path presented above. At the same time, some differences can be expected in the youngest age group in German, given that the youngest 4-year-old bilingual children might be at the earlier stage of language acquisition process compared to monolinguals of the same age and that at this age it can still play a role in the use of reference.[52] In Russian, however, bilingual children are expected to show a very similar distribution, compared to monolinguals, even in the youngest age group.

The hypotheses regarding the developmental patterns and changes over age are based on the previous research pointing out that the development of referential cohesion is said to be the domain of later language acquisition (cf. Bamberg 1994; Berman & Slobin 1994; Hickmann 2000; Karmiloff-Smith 1985; Kauschke 2012; inter al., see also the overview of studies in Chapter 3). Thus, it is assumed that, although all types of referential expressions are expected to be in place by age 4 in both monolingual and bilingual children, there might be some considerable changes in the distribution of referential expressions between 4 and 6 years of age.

For example, in German, a decrease in the use of DEMs and an increase in the use of PROs over age can be expected to approach the target adult-like use of pronouns in the analyzed age range in both monolingual and bilingual children in this type of narrative discourse. In Russian, on the other hand, PROs are acquired early. Therefore, it is expected that both monolingual and bilingual children use this type of referential expression consistently in all age groups. An increase in the use of 0PROs can be expected in both languages, given that general narrative development, growing syntactic complexity, and development in the use of cohesive means might trigger more variability in encoding reference, including the use of 0PROs.

[52] In the investigated bilingual sample, the length of exposure in 5- and 6-year-olds is longer than 2-3 years, thus it can be assumed that the acquisition of different types of referential expressions and their functions is already at a very advanced stage.

Specific predictions about developmental patterns **compared intralinguistically**:

- In Russian, increase in the use of zero reference (0PROs) over age; continuous use of nominal (bareNs) and overt pronominal (PROs) reference;
- In German, decrease in the use of DEMs over age with simultaneous increase in the use of PROs as well as increase in the use of 0PROs; continuous use of nominal reference (whereas the proportion of indefNPs is expected to be much lower than defNPs due to the structure of picture-based narratives).

The developmental changes might be more pronounced in bilinguals, especially in German, as sequential bilinguals can undergo different stages in the process of language acquisition more quickly or slowly than monolinguals. At the same time, even if there are some differences between monolinguals and bilinguals in the younger age groups, they are not expected to be significant, and no differences are expected between monolinguals and bilinguals at age 6 at the latest.

The third group of RQs and Hs concerns **crosslinguistic comparisons** of monolingual and bilingual samples within and across age groups.

RQgr3: **a)** Do bilingual and monolingual children show similar performance and development over age with regard to the grammatical use of referential expressions in Russian and German, compared crosslinguistically?
b) What are the developmental patterns in bilinguals and monolinguals across languages? Do developmental changes, if there are any, occur at the same time in both languages?

Hgr3: **a)** Monolinguals and bilinguals show language-specific performance (based on more general categories given below) but similar development over age.
b) Developmental patterns go in the same direction in both languages but can be significantly different with regard to the use of pronominal reference, given language-specific grammatical constraints. Developmental changes, if there are any, occur at the same time in Russian and German.

These hypotheses are also based on the findings from the previous research presented above and on typological differences of the analyzed languages. The referential systems in Russian and German exhibit various differences in both form and function of referential expressions (although they look similar on the surface) available in these languages: e.g., bareNs in Russian are more comparable to German in/defNPs than to bareNs in German, which are used only in certain contexts; or DEMs (d-pronouns) in German exhibiting similar function, as PROs in child narratives are more comparable with Russian PROs than with Russian DEMs which have a much more restricted function and are barely used in the narrative discourse. In addition, Russian, as a weak pro-drop language, allows the use of zero reference in more contexts than it is the case in German. Thus, the direct comparison of the same types of referential expressions should unavoidably show huge differences. The

crosslinguistic comparisons are done, therefore, on a more general level, combining certain types of referential expressions into comparable categories:

- bareNs and demNPs in Russian vs. in/defNPs, demNPs, and bareNs in German in order to compare the use of nominal reference;
- PROs and DEMs are considered as one category in both languages in order to compare the use of overt pronominal reference;
- 0PROs are compared directly in both languages for the use of zero reference.

Specific predictions about developmental patterns in **crosslinguistic comparison**:

- simultaneous development (increase/decrease) in the use of nominal reference over age in both languages in bilinguals as well as in monolinguals;
- simultaneous increase in the use of zero reference and decrease in the use of overt pronominal reference over age in both languages in bilinguals but different developmental patterns in monolinguals. The proportion of zero reference is expected to be higher in Russian than in German, and the proportion of overt pronominal reference is expected to be higher in German than in Russian in the monolingual as well as bilingual samples.

5.2 Pragmatic use of referential expressions

Three groups of research questions (RQs) and hypotheses (Hs) with respect to the pragmatic (pr) use of referential expressions are formulated and explained below.

The first group of RQs and Hs concerns the general distribution of referential expressions with regard to their information status in monolingual and bilingual children as well as possible pragmatic crosslinguistic interactions in bilinguals.

RQpr1: **a)** What types of referential expressions are predominantly used by bilingual and monolingual children for introducing, maintaining, and reintroducing referents in Russian and German (in the whole samples, within and across age groups)? How does the referential choice and, therefore, the distribution of types of referential expressions in the child narrative discourse change, depending on the information status of a referent (*new, given, accessible*) in each language?

b) Are there any crosslinguistic interactions in the pragmatic use of referential expressions in Russian-German bilingual children, and, if there are, in which language, and which types of referential expressions or which information statuses are affected? Are such pragmatic interactions in bilingual children age-specific?

Hpr1: **a)** Monolingual and bilingual children aged 4 to 6 are able (at least to some degree) to account for the information status of a referent classified as *new, given,* and *accessible.* Therefore, their referential choice and the distribution of types of referential expressions used for introducing, maintaining, or

reintroducing discourse referents change according to the referent's information status. Monolingual as well as bilingual children use specific types of referential expressions for these discourse purposes in each language.

b) Minor pragmatic interactions might occur in each language in bilingual children with regard to the use or overuse of specific types of referential expressions for a specific discourse purpose (introduction, maintenance, or reintroduction of referents). Thus, referential expressions with any information status can be affected. At the same time, the interactions, if there are any, are expected to be insignificant and age specific.

These hypotheses are based on theoretical frameworks bound to the role of information status and degree of cognitive activation for referential choice (Chafe 1987; Lambrecht 1994), presented at the beginning of this chapter. It is furthermore based on previous research on monolingual and bilingual children as well as adults in the domain of reference and referential cohesion in narrative discourse (see the overview of studies in Chapter 3).

Specific predictions about expected types of referential expressions used for introducing, maintaining, and reintroducing discourse referents:

- indefinite nominal referential expressions (indefNPs in German, postVbareNs[53] in Russian) are used almost exclusively for introducing new referents, although the use of definite nominal referential expressions and even pronominal expressions for the same purpose is also expected in child discourse;
- predominantly pronominal types of referential expressions (DEMs, PROs, and 0PROs in German; PROs and 0PROs in Russian) are used for maintaining referents, along with definite nominal referential expressions (defNPs in German, bareNs in Russian);
- predominantly definite nominal referential expressions (defNPs in German, bareNs in Russian) are used for reintroducing referents into the narration, although the use of pronominal expressions for the same purpose is also expected to a smaller degree.

As for the possible crosslinguistic interactions, some pragmatic interactions related to the domain of reference have been found in different language combinations of bilingual children, so that one could speak about a crosslinguistic influence towards the L2 or the L1 or in both directions, depending on the study and the topic of investigation (e.g., Chen & Lei 2013; Fiestas & Peña 2004; Kyuchukov 2000; Paradis & Navarro 2003; Serratrice et al. 2004; inter al., as well as the overview of the respective studies in Chapter 3). Thus, in the analyzed Russian-German language combination some pragmatic interactions can be expected in both languages and in different age groups.

[53] For the analysis of referential expressions used for introducing discourse referents into the narration, bareNs in Russian have been additionally categorized according to their syntactic position relative to the verb (see Chapter 4 for more details on the interpretation of preverbal and postverbal bareNs in terms of definiteness).

Specific predictions about potential pragmatic crosslinguistic interactions:

- In Russian, bilingual children may introduce new referents, among other options, with noun phrases with a specificity marker, such as *odna ptica (oneF bird)*, as these are grammatically possible in Russian and analogous to indefNPs in German. Along with PROs, bilinguals may also use DEMs *ėtot/ėta/ėto* (analogous to the German DEMs) more extensively in Russian for maintaining discourse referents.
- In German, bilingual children might occasionally use bareNs, especially for introducing new referents, and overuse 0PROs for maintaining reference in contexts where monolingual children would use overt pronouns.

The next group of RQs and Hs concerns **intralinguistic comparisons** of monolingual and bilingual samples within and across age groups.

RQpr2: **a)** Do bilingual and monolingual children show similar pragmatic performance and development over age with regard to the pragmatic use of referential expressions in Russian and German, compared intralinguistically?

b) What are the developmental patterns in monolingual and bilingual children, compared intralinguistically, and are there any significant developmental changes between age 4 and 6?

Hpr2: **a)** There are no significant differences between bilingual and monolingual pragmatic performance and development over age, compared intralinguistically. Thus, bilingual children demonstrate language-specific performance and development, similar to the monolingual ones, within the same language with regard to the pragmatic use of referential expressions.

b) The distribution of different types of referential expressions changes over age towards a more systematic use of specific types of referential expressions for introducing, maintaining, and reintroducing referents, and developmental changes, if there are any, occur at the same age in bilingual and monolingual children, compared intralinguistically.

These predictions are based on the previous research in the domain of reference as well as on the hypotheses about (bilingual) language acquisition, already presented in this chapter. As has also been mentioned above (in relation to Hgr2), referential cohesion is the domain of later language acquisition. At the same time, various studies present contradictory results with regard to the development of reference management in narratives. Some of them claim that pragmatic use of reference develops after age 5-6 and others claim pragmatic development as early as at age 3-4 (see Chapter 3 for the overview of studies). Thus, it can be expected that some developmental changes related to the pragmatic use of referential expressions in narrative discourse may occur in Russian and German within the investigated age range (4- to 6-year-old children).

Specific predictions about developmental patterns in the use of referential expressions for introducing, maintaining, and reintroducing referents **in intralinguistic comparison**:

- increase in the use of indefinite nominal reference (postVbareNs in Russian, indefNPs in German) with simultaneous decrease in the use of definite nominal reference (preVbareNs in Russian, defNPs in German) for introducing new referents in each language;
- increase in the use of pronominal reference (including zero reference), PROs and 0PROs (whereas in German, the proportion of DEMs is expected to decrease over age in favour for PROs) and decrease in the use of definite nominal reference (bareNs in Russian, defNPs in German) for maintaining referents in each language;
- increase in the use of definite nominal reference (bareNs in Russian, defNPs in German), decrease in the use of pronominal reference (whereas the use of 0PROs is not expected at all) for reintroducing referents in each language.

The third group of RQs and Hs concerns **crosslinguistic comparisons** of monolingual and bilingual samples within and across age groups.

RQpr3: **a)** Do bilingual and monolingual children show similar pragmatic performance and development over age with regard to the pragmatic use of referential expressions in Russian and German, compared crosslinguistically?
b) What are the developmental patterns in monolingual and bilingual children, compared across languages? Do the developmental changes, if there are any, occur at the same time in both languages?

Hpr3: **a)** Monolinguals and bilinguals show language-specific pragmatic performance (based on more general categories given below) but similar pragmatic development over age.
b) Developmental patterns in Russian and German, compared crosslinguistically, go in the same direction in both languages towards a more systematic use of specific types of referential expressions for introducing, maintaining, and reintroducing referents. Developmental changes, if there are any, occur at the same time across languages in bilinguals as well as in monolinguals, assuming more universal pragmatic development with regard to the use of reference in narrative discourse.

In their use of language-specific referential expressions, bilingual and monolingual children may apply similar referential strategies to refer to discourse referents. Although monolingual children do not have access to two languages, their pragmatic development might still be similar to that of bilinguals, when assuming it to be more universal and less language specific. At the same time, developmental patterns in the monolingual samples may admittedly differ if grammatical constraints are too strong, e.g., with regard to the use of 0PROs in Russian and German.

In order to compare the pragmatic use of different referential expressions crosslinguistically, certain referential expressions are compared directly, and several types of referential expressions are combined into comparable categories:

- postVbareNs in Russian vs. indefNPs in German for comparing indefinite types of nominal reference used for introducing new referents;
- preVbareNs and demNPs in Russian vs. defNPs in German for comparing definite types of nominal reference used for introducing new referents;
- all bareNs and demNPs in Russian vs. in/defNPs and bareNs in German for comparing nominal reference used for maintaining or reintroducing referents;
- PROs and DEMs are considered as one category in both languages for comparing the use of overt pronominal reference;
- 0PROs are compared directly in both languages for zero reference use.

Specific predictions about developmental patterns in the use of referential expressions for introducing, maintaining, and reintroducing referents in **crosslinguistic comparison**:

- simultaneous increase in the use of indefinite reference (indefNPs in German, postVbareNs in Russian) and simultaneous decrease in the use of definite reference (defNPs in German, preVbareNs in Russian) for introducing new referents in both languages;
- simultaneous increase in the use of pronominal (including zero) reference (PROs and 0PROs in Russian, PROs, DEMs and 0PROs in German) and simultaneous decrease in the use of definite nominal reference for maintaining discourse referents in both languages. The proportions of overt pronominal reference and zero reference are more likely to be language-specific: more PROs and DEMs in German than PROs in Russian, more 0PROs in Russian than in German;
- simultaneous increase in the use of definite nominal reference (defNPs in German, bareNs in Russian) and simultaneous decrease of pronominal reference for reintroducing referents in both languages.

6 Methodology

6.1 Participants of the study

As described in Chapter 1, the developmental shift in the acquisition of discourse devices may take place between 4 and 6 years of age. In order to observe changes in the children's narrative discourse as well as phenomena bound to the discourse structure, the target age groups were fixed to 4-, 5-, and 6-year-olds for both bilingual and monolingual participants.

6.1.1 Bilingual participants

Selection criteria

According to the rationale of the study, only children with one type of bilingual acquisition were selected for the investigation: simultaneous or early sequential bilinguals who follow the path of bilingual first language acquisition (2L1) with the combination L1 Russian and L2 German. Due to their diverse individual language histories however, it is rather challenging to find a homogeneous group of children of the same bilingual type. Strict selection criteria had to be applied in order to ascertain the type of bilingualism and typical language development in children initially identified as potential participants of the study.

Children had to have been exposed to L1 Russian from birth (L1 home environment) and later on to L2 German in a kindergarten environment. As demonstrated in Chapter 2, section 2.3, the bilingual type is strongly related to the AoO of the L2. According to the classifications of bilingual types based on type of language acquisition, children whose exposure to the L2 starts prior to age 3-4 can be considered as bilinguals with the 2L1 path of acquisition (see Meisel 2008, 2011; Rösch 2011; Schwarz 2004). At the same time, Meisel (2004, 2011) reported important differences between morphosyntax in L2 and L1 language acquisition by between 3;6 and 4 years AoO of the L2 (see Meisel 2011:206). Therefore, to account for possible differences in the domain of reference as well, which is investigated in the present study, the maximal AoO has been set at 3;3. The minimal AoO had no strict limitations as children start kindergarten at different ages. Taking only early sequential bilinguals into consideration would extremely narrow the sample down and would not reflect the real situation of Russian-German bilingual children beginning to acquire L2 German between 1 and 3 years old in kindergarten. Besides, the age boundaries for simultaneous and early sequential bilinguals are still diffuse and may overlap (see Chapter 2, section 2.3 for more details).

It was also important to ensure the parent's first-generation immigrant background as a function of language input. The home language of the second or third generation of

immigrants can already be affected by the host country's language and show structural changes in grammar and lexicon (see Polinsky 2008).[54]

The length of exposure (LoE) to L2 German was also considered as one of the basic criteria for participant selection because children had to have basic grammatical knowledge in German, be able to communicate in both languages, and follow test instructions. The minimal LoE of one year was considered adequate, as basic syntactic and morphological structures of a language should be acquired within this period, given intensive exposure, which is usually the case in the kindergarten setting. In addition, children must have had no prior language or hearing problems, allowing their performance in their L1 and L2 to be explained only in terms of bilingual language acquisition and not language disorders.

With these considerations taken into account, the selection criteria were fixed as follows:

- Three age groups: 4-, 5-, and 6- years old (4- and 5-year-olds in kindergarten, 6-year-olds partially in kindergarten, partially in the 1st grade of primary school[55]);
- L1 home environment: parents are native speakers of Russian (first generation immigrants) and speak Russian at home with their children (Russian input since birth);
- L2 kindergarten environment: German-dominant kindergarten (with minimum 60% German-speaking children);
- simultaneous or early sequential bilinguals with the 2L1 path of acquisition: maximal AoO of L2 German at 3;3 through kindergarten;
- LoE to L2 German for at least one year prior to testing;
- typically developing (TD) children: no history of (diagnosed) language or hearing problems;
- active bilinguals: children are able to communicate and follow test instructions in both languages.[56]

In order to fulfil the criteria presented above and to be considered for the final analysis, the candidates had to undergo a multi-level selection process, consisting of three stages:

1) The detailed information about children's language and social development and environment as well as about parent's migrant backgrounds was obtained prior to testing through parent questionnaires handed out together with consent forms. An additional interview was also performed with mothers at a later stage of the project.[57]

[54] It does not mean, of course, that language performance based on exposure to the language of the second, third, or other generations of immigrants, cannot be analyzed. It is important, however, to account for the differences in language acquisition and use between different generations of immigrants. This relates to a large field of research, namely the research on heritage language acquisition and bilingualism, which is not under the scope of this dissertation. For more information on this topic see, e.g., Rothman (2009) or Kupisch and Rothman (2016).

[55] In the federal state of Berlin, almost all 6-year-old children are already enrolled at school (first grade) because children start school rather early.

[56] Active as opposed to passive bilinguals who understand but cannot use one of the languages actively in everyday communication (see Pearson 2009).

[57] Complete project materials in several languages can be found in *GESIS – Data Archive* (see Armon-Lotem et al. 2013) upon request and permission of principle investigators.

Children who did not fulfil the criteria for age, L1 and L2 environments, AoO and LoE to the L2 or who have had previous history of diagnosed language or hearing problems, were not considered for participation in the study.

2) Language proficiency was followed up during several sessions performed in each language, including semi-structured conversations, role games, and storytelling. In this way, one could see whether children were able to communicate and to follow instructions in both languages. In addition, language proficiency screenings and various linguistic and sociolinguistic tasks were conducted. In particular, in German, *Sprachscreening für Vorschulalter (SSV)* (Grimm 2003) as well as noun and verb naming tasks (Kauschke 2007) were performed. Due to the lack of appropriate tests at the time in Russian, similar tasks were designed and performed: Non Word Repetition (NWR) task and complex syntax imitation task, similar to SSV screening, as well as noun and verb naming tasks in analogy to those performed in German.[58] On average, 6-7 sessions with 30-45 min. of duration were performed in each language with each child.

   Children showing a very low performance in at least one of their languages (Russian or German) such that they were not able to understand instructions or to follow a simple conversation, as well as those who refused to talk in one of the target languages, were excluded from the study. In the case of further analyses of linguistic tasks suggesting an atypical language development, data of those children were excluded from the final analysis, however, the children remained in the project.

3) If new information obtained at a later stage of the project (e.g., through parental interviews) somehow contradicted the selection criteria, the data of those children were excluded from the analysis. For example, if it turned out that the AoO is different from the initially stated one and does not fulfil the selection criteria, the data were completely excluded from the analysis. At the same time, if children had to be ruled out for other reasons (e.g., change of residence, refusal of further participation), the data collected from then up until that point were taken into the analysis.

Sampling

The sampling and collecting of the bilingual data took place in the framework of the project *Language Acquisition as a Window to Social Integration of Russian Language Minority Children*, conducted in cooperation between ZAS Berlin, Germany, and Bar-Ilan University, Israel, during 2007-2010.[59]

[58] There were also other linguistic and sociolinguistic tasks developed within the main project and performed with the same participants. More details about those tasks and the project in general can be found in the detailed description of the project available in *GESIS – Data Archive* (especially in the *Method Report*, see Armon-Lotem et al. 2013), in Walters et al. (2014), or in Gagarina et al. (2014).

[59] I would like to thank the German Ministry for Education and Research (BMBF) as well as the principle investigators of the project, Natalia Gagarina, Joel Walters, and Sharon Armon-Lotem, for supporting my research in the framework of the project (grant numbers 01UG711 and 01UW0702B).

In Germany, participants were sampled in German kindergartens and primary schools of Berlin (depending on the age group) in neighbourhoods with large numbers of Russian-speaking immigrants. Based on official registers provided by the city administration, kindergartens and primary schools were contacted by phone, given general information about the project, and asked about children with Russian-speaking family background who might fit the target age groups. In the case of a positive answer, the administration was asked for permission to distribute parental consents. In total, over 150 kindergartens and 20 schools were contacted; 35 of them had children from Russian-speaking families that fit the target age groups and agreed to cooperate.

Due to the strict selection criteria, in particular with regard to the AoO and LoE to the L2, many children initially identified as potential participants could not be considered for the study. Therefore, more children had to be found, especially in the oldest target group, 6-year-old children. The search for children was widened using the snowball system. In addition, local associations offering activities for Russian-speaking children were contacted as well. Anticipating additional shortages at later stages of the project (i.e., the need to exclude data of children at risk for language impairments, drop-outs, etc.), the target was to obtain data from at least 30 participants per age group so that later on a minimum of 20 stories per age group and language could be analyzed.

Parents of all potential participants received consent forms. In the end, 22 institutions participated in the project (the others were discarded for lacking parental consents or because children did not meet selection criteria). With permission of the kindergarten or school administration, all test sessions took place on site at the kindergartens or schools. Sometimes, additional permission from the private agencies funding a kindergarten was also needed. In total, 225 consents were passed out and 174 parents agreed to let their children participate in the project. However, 61 children did not meet the basic selection criteria with regard to the acquisition paths of L1 Russian or L2 German (stage 1 of the selection process), a further 14 were ruled out after the first two sessions because they could not follow instructions or communicate in one of the languages or else refused to talk in one of the languages (stage 2 of the selection process). A few children (6) were ruled out due to a change of residence during the project or refusal of further participation. However, this did not affect the narrative data collected during the first two sessions. At the end of the data collection, 3 more children were ruled out due to contradictory information obtained only at the later stage of the project (stage 3 of the selection process). Overall, 90 children participated continuously in the project and followed the majority of linguistic and sociolinguistic tasks. Of those children, parental interviews were conducted with 88 mothers.

6.1.2 Monolingual participants

Selection criteria

In order to compare bilingual children to monolingual ones, especially with a focus on pragmatic development as tightly bound to the general cognitive development, the control

monolingual groups were built up following the same selection criteria. Thus, the age groups were also fixed at 4-, 5-, and 6-year-olds, with a comparable mean age per age group.

As monolingual groups are more homogeneous and could be better counterbalanced in terms of age, gender, and language background, the number of stories needed for comparison with bilingual data was fixed to 10-12 in each age group and each language.[60] This meant sampling between 30 and 36 participants in each language.

The data from monolingual children were collected prior to the current investigation within the *ZAS Language Acquisition Project* (2005-2007), and transcriptions of stories were kindly provided by the principle investigators[61] for the current study. The data pool consisted of more than 500 stories collected from around 180 monolingual children in Russian and around 130 monolingual children in German, ranging from 2 to 6 years old (for bilingual children one story was elicited in each language, most of the monolingual children told two stories at a time).

Sampling

The sampling of children participated in the *ZAS Language Acquisition Project* took place in Berlin for German monolinguals and in St. Petersburg for Russian monolinguals. Despite the large data pool, there were only a few children fitting the oldest target age groups (5- and 6-year-old children) for the present study. In order to complete these age groups, an additional sampling took place in 2010, after the data from bilingual children had already been collected. Several German monolingual 5- and 6-year-old children were recruited in Berlin and a few Russian monolingual children in St. Petersburg. The stories were elicited in the same way as with other monolingual participants.

The monolingualism of children was assured through continuous exposure to either Russian or German as both their family and environmental language. Children attended a kindergarten or school in neighborhoods with a mainly monolingual population. In this way, the influence of other languages on monolingual development could be reduced to a minimum. Clearly, in monolingual children the age and the LoE (length of exposure) coincide, and, therefore, the LoE criterion was not necessary. The same applies to the AoO-criterion, as the age of onset in all monolingual children is from birth onwards. However, to assure their typical language development, these children too had to have no prior history of (diagnosed) language or hearing problems. This information was obtained through parents and kindergarten or primary school teachers. No additional language tests were performed with monolingual children.

As the majority of children were sampled and tested previously, their stories had already been transcribed. Therefore, for the present study, the selection criteria were applied not at the level of sampling, but at the level of the transcribed data. More details on working with

[60] 10-12 stories per age group and language were considered to be sufficient for statistical analysis in homogeneous groups of monolingual children.

[61] I would like to thank Natalia Gagarina and Dagmar Bittner for permission to use transcriptions of monolingual data collected within the ZAS Language Acquisition Project.

transcripts and selection of stories for the final analysis are given in section 6.3 of the current chapter.

6.2 Task design

6.2.1 Picture stimuli

In order to elicit narratives from bilingual children, two picture-based stories were needed, allowing children to tell a spontaneous story based on previously unknown pictures in each of their languages. It was important to take into account the newness of the story as a condition in order to avoid linguistic priming (in a way that would prime children to use the same constructions and vocabulary in the second language that they had already used in the first one). Therefore, the stimuli had to be different but comparable in narrative complexity, pictorial design, structure, number of pictures, and number of protagonists. Given the variety of stimulus materials already used in numerous studies, there was a good choice of materials that could be considered for the present study as well. After reviewing the available materials, it was decided to use two picture-based stories, designed by other researchers and previously tested with monolingual children: the well-known CAT story, created by Maya Hickmann and used in a number of studies (Hickmann 1982, 2003; Hickmann et al. 1995, 1996; Hickmann & Hendriks 1999; Hickmann et al. 1995; Kail & Hickmann 1992; Gülzow & Gagarina 2007; inter al.), and the FOX story, designed and used within the *ZAS Language Acquisition Project* (Gülzow & Gagarina 2007), already mentioned previously. A big advantage for comparability of results was the availability of monolingual data collected with the same stimuli and by using the same test procedure.

The stimulus materials present a sequence of 6 black-and-white[62] pictures, each with animal protagonists. The number of pictures is relatively small so as not to overburden or bore young children, but large enough to provide narrative and referential continuity in a produced story. In the CAT Story, the protagonists are *mother bird, baby-birds/chicken, cat,* and *dog*; in the FOX Story, they are *bird, fox,* and *fish* (or better, a *fish skeleton*). Thus, in both stories there are at least three protagonists that serve as potential discourse topics and allow the use of different referential expressions for referring to them.[63] The protagonists of the stories in the present study do not have a specific status in terms of being main or secondary characters (except for the fish skeleton in the FOX story that does not become an agent and can therefore be considered secondary). Often, the character's prominence

[62] The stimuli pictures used in different studies are either black-and-white or coloured. Meanwhile, the effect of colour has been investigated in a Canadian study conducted by Schneider, Rivard, and Debrueil (2011) in children between 4 and 6 years of age (the exact same age as target groups in the present study). No significant differences were found in children's performance with respect to the content of the presented stories, story length, or the number of different words used in the produced narratives.

[63] Schneider and Dubé (1997) already pointed out that stories with secondary characters would permit the investigation of anaphoric strategies, as children would be more likely to use more variability in referring to different characters.

depends on the child's individual interpretation of the story. Both stories have a similar degree of narrative and structural complexity as well as similar vocabulary needed in order to tell a coherent story. In addition, the FOX story was designed in such a way that all characters have the same grammatical gender within one language (masculine in German, feminine in Russian) in order to trigger more differentiated reference and to avoid the use of pronouns whose antecedents could be clearly identified by gender alone.[64] Both stories are presented in Appendix A.

As was already mentioned, monolingual children told both stories, whereas bilingual children were presented a different story in each language to ensure novelty of the story and avoid linguistic priming. Later at the analysis stage, the two stories were not separated anymore. However, in order to relativize possible differences that could still occur between the stories, in the bilingual sample the stories had to be counterbalanced through age groups and languages at the level of data collecting so that the number of CAT and FOX stories would be similar in each age group and in each language. Furthermore, half of the children in each age group were tested first in Russian then in German, half of them the other way around (with an interval of one to three weeks between sessions). The additional randomization allowed the age of children to be considered based on the date of the first testing equally for the analysis of Russian and German narratives. The narrative corpus used for the final analysis of data is presented in section 6.4 of this chapter.

6.2.2 Task procedure

Children were tested individually in a separate room in their kindergarten or school by one of the research or student assistants, who were native speakers of Russian or German. With bilingual children, each session was performed completely in either Russian or German. First, a free conversation between a child and an examiner took place in order to set a child into the narrative mood and to facilitate the elicitation of a picture story. After the initial warming-up, the target story was introduced. As was shown in a number of previous studies, e.g., those conducted by Hickmann (1991) or Karmiloff-Smith (1980, 1981), children tend to treat pictures as separate units if presented one after another, without knowing what the story is about. To avoid such an effect, a specific procedure for the story presentation was chosen. It was kept very precise and had to be carefully followed by examiners. The same task procedure was used for both monolingual and bilingual samples in order to avoid differences in methodology and not to influence the outcome of the data analysis.

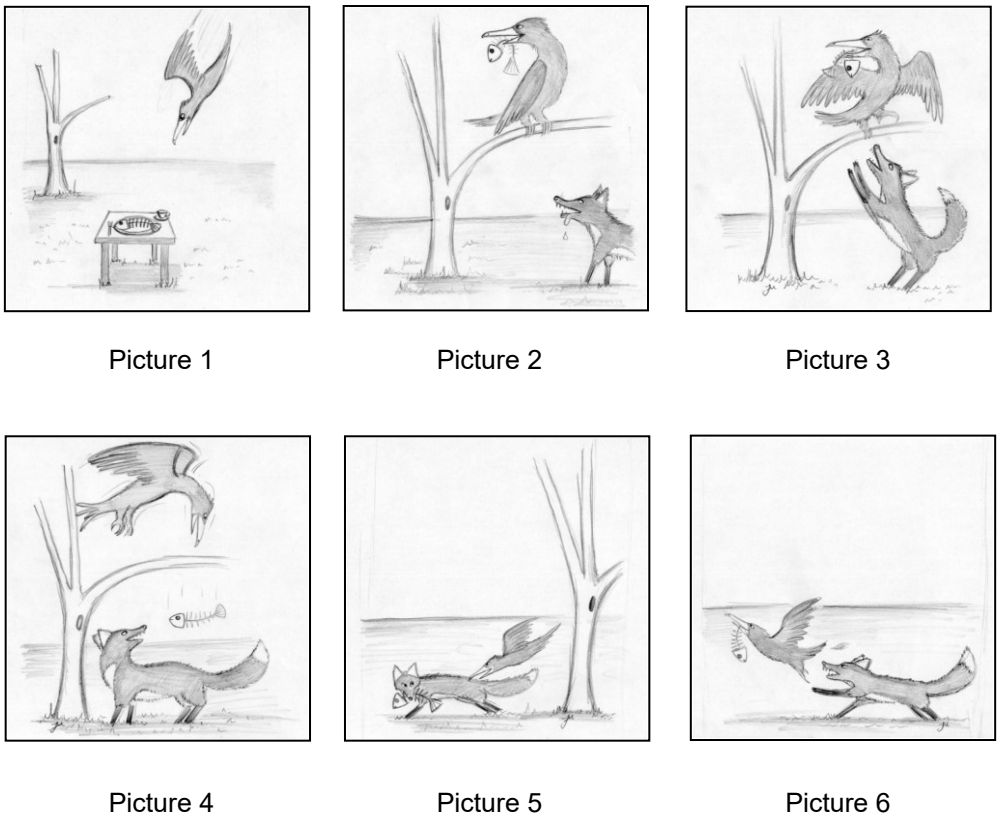
The task procedure was as follows:

The examiner sat opposite or across (at right angle) of the child and could also see the pictures. The role of visual access on the ability to introduce referents in narratives and cohesive anaphoric relations as a function of mutual knowledge was accounted for, as

[64] It should be noted, however, that children often name story protagonists differently, e.g., *volk (wolf.MASC)* instead of *lisa* (*fox.FEM)* in Russian or *Ente* (*duck.FEM)* instead of *Vogel (bird.MASC)* in German, so that gender is sometimes alternated.

investigated in earlier studies (see Kail & Hickmann 1992; Kail & Sanchez y Lopez 1995). However, research findings suggest that it does not affect the results in children before the age of nine. Therefore, in the case of the present study it was decided in favour of the mutual knowledge condition, as it is the easier and more appropriate condition to perform with younger children.

First, all pictures were presented to the child so that the child could observe the course of the story and get a general impression of the story sequence (original size of each picture was 12 x 12 cm in the FOX story and 13 x 10 cm in the CAT story). The pictures were put on the table as illustrated below in Figure 3 and the child was given time to look through all pictures.

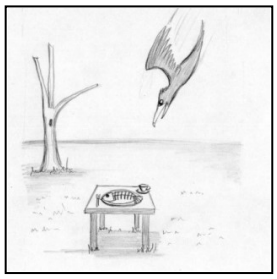


Picture 1 Picture 2 Picture 3

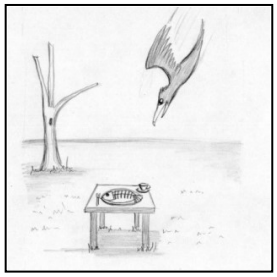
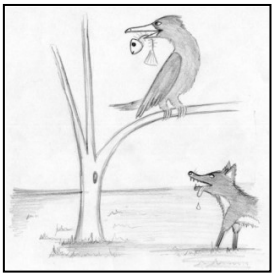
Picture 4 Picture 5 Picture 6

Figure 3. Presentation of pictures before storytelling (FOX Story)

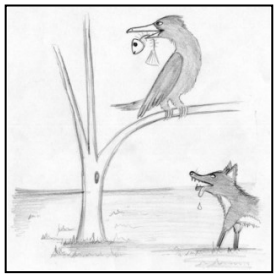
Then the pictures were removed. Next, the child was asked to tell the story while the pictures were presented again. When the child was ready to tell the story, he or she was presented the first picture. After he or she finished with the first one, the second picture was positioned to the right side of the first picture, serving as the new stimulus. Then the second picture was moved to the left on top of the first picture, and the third picture was placed on the right so that the child would see no more than two pictures at a time. This pattern was repeated with all subsequent pictures (see Figure 4). This procedure was chosen because it helps the child to tell a continuous story instead of just describing individual pictures as well as not to distract the child with too many pictures at once.



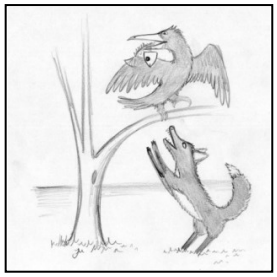
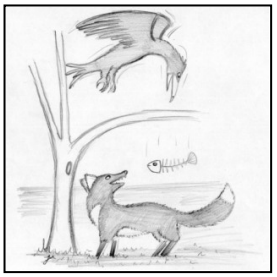
Picture 1

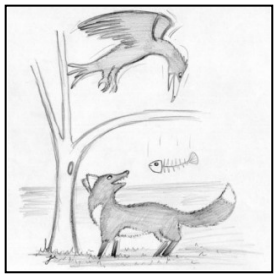
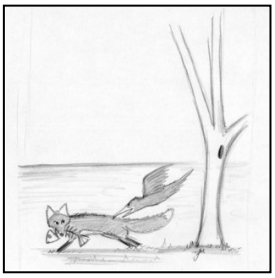
Pictures 1+2



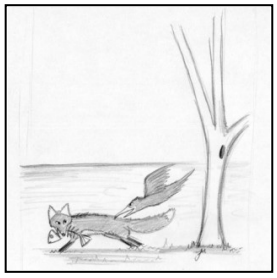
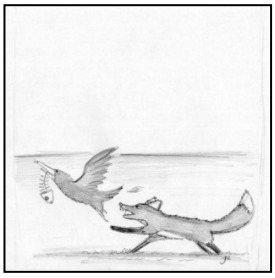

Pictures 2+3

Pictures 3+4

Pictures 4+5

Picture 5+6

Figure 4. Presentation of pictures for storytelling (FOX Story)

6.3 Transcription of the narrative corpus

6.3.1 Transcription tools

For transcription of child speech, the most popular and accessible tool is the *CHAT transcription format* developed by the *CHILDES Project: Tools for Analyzing Talk* (MacWhinney 2000), used for a large variety of languages. This tool gives an opportunity not only to transcribe and additionally code the data in a unified format, according to conventions and principles elaborated particularly for child language, but also to analyze the transcribed and coded data through the *Computerised Language ANalysis (CLAN) program*. The CLAN program allows for different methods of quantitative analysis. Along with basic options, such as type/token ratio, word frequency, or MLU (mean length of utterance), it provides specific options for combinations of coded parameters to be analyzed.

The monolingual data collected in the framework of the *ZAS Language Acquisition Project* had already been transcribed in the CHAT format. The stories of bilingual children collected for the present study were also audio-recorded, digitalized, and transcribed in the same format. The reasons were methodological as well as practical: the CHAT format allows coding both data sets for all needed parameters and performing analyses based on the same methodology.

Transcribing is a very time-consuming but indispensable part of the data processing and demands a thorough and systematic approach. Depending on how detailed the transcription should be, it can take up to ten hours for one hour of recorded child speech. The quality of recording also plays a role for the accuracy of transcription. Special computer programs which are able to augment a recording's audibility are very helpful, bearing in mind that children do not always speak clearly and loudly. Different noises can influence the quality of recording as well, so sometimes it is difficult or even impossible to understand what was said. It is not rare, therefore, that transcripts include some unintelligible elements (marked accordingly), especially in child discourse. Nonetheless, carefully transcribed data is the best basis for the analysis of (narrative) discourse.

In addition, it is important to mention that the transcription of bilingual narratives requires, beside linguistic skills, knowledge of both languages, as children might code-switch. Since the Russian data for the present study were transcribed for the most part in St. Petersburg, Russia, by specialists who had access to the MORCOMM program, *automatic morphological coding* of Russian language, developed by Gagarina, Voeikova, and Gruzincev (2003), all Russian transcripts were proofread, and, if needed, completed and corrected for the current investigation by the author of this work. Finally, all transcripts were double-checked again before being coded for relevant parameters. The same procedure was applied to the German data which were transcribed by trained student assistants in the framework of the project. Below more details are given on transcription rules and codes used in the present study.

6.3.2 Transcription principles used in the present study

As already mentioned, there are certain conventions and principles which should be followed when transcribing any data. Some of them are obligatory from the technical point of view (otherwise the transcribed files will not be read by the CLAN program), e.g., the way in which the file headers are coded or which symbols can be used on the main tier; some of them are optional and can be used for providing additional information or analyzing specific phenomena afterwards. For example, pauses, repetitions, interruptions, intonation, etc. do not have to be coded, but it is possible to do it according to certain principles if the analysis intends to deal with these properties or if the data are to be used later on for further analyses. In the latter case, it is important to transcribe as much as possible to enable other researchers to analyze the data, provided that a project allows investing in extensive transcription.

For transcription of the data used for the present study, it was agreed that not all options were to be taken into account for transcription but only those which are important for the narrative discourse. For example, prosodic features were not included in the transcription because they are not reliable markers for interpretation of referential expressions in the discourse of young children and they do not play a role for the current investigation (see Chen 2007; see also Chapter 2, section 2.2 for more details). In general, they can be taken into account because correspondent transcription symbols are available and are continuously used in many studies where the prosody is essential for interpretation of certain expressions or parts of sentences. At the same time, in an attempt to keep the children's discourse as authentic as possible, most of the usually transcribed elements were indeed taken into account, including false starts, pauses, repetitions, omissions, errors, etc. An overview of the selected signs is given in Appendix B.

The stories were transcribed generally in the same way in both analyzed languages, Russian and German, with one difference: the Russian data were transcribed according to the *sentence/sentence thought* (SST) and the German data according to the *communication unit* (CU). The main difference between these two ways of transcribing narrative data consists in the segmentation of clauses.

The first method of analysis, SST, "contains an independent clause(s) with or without a dependent clause(s), or the examiner can infer that an independent clause was intended" (Hughes et al.1997:248). In order to transcribe the data correctly, it is necessary to pay attention to pauses, hesitations, or changes in intonation indicating the end of the sentence. These markers also help in interpreting sentence limits when using, for example, *and, or, and then*, which are not always used as true conjunctions, but as *joiners* (in terms of the authors) and often begin a new thought/sentence. These *joiners* are often used in spoken narratives, especially in child speech, and should be taken into consideration. The grammatical correctness of a SST is not considered, so incomplete or ungrammatical sentences are also treated as SSTs.

"The structural definition of *communication unit* (CU) is "each independent clause with its modifiers" (Loban, 1976, p.9)" (Hughes et al. 1997:53). Basically, it means that sentences

consisting of a main clause only, or of a main and any dependent clause/s, or of coordinate clauses with only one subject (usually omitted in all consecutive clauses) are considered as one CU. Those utterances which are not complete sentences, e.g., answers to questions with omitted elements or sentences with omitted elements preceded by “terminal silence” (a pause), are also considered to be independent CUs. On the other hand, sentences containing two or more coordinate clauses with explicit or different subjects in each of the coordinate clauses are considered to be independent CUs and should be separated (in contrast to SST).

One example of the transcription according to SST:

(31)
*073: a potom prishla lisica.
*073: i potom [2] on [//] ona zalezla i zabrala, a mama poletela nazad.
*073: ona xotela Vogel@err@csr zabrat'.
*073: a potom ptichka uletela, a potom [2] malen'kie Vogel@csr ostalis' i ptichka uletela.
*073: a potom prishel Hund@csr.
*073: potom Katze@csr videla, tol'ko mama ushla, a detki ostalis'.

The same excerpt transcribed according to CU:

(32)
*073: a potom prishla lisica.
*073: i potom [2] on [//] ona zalezla i zabrala.
*073: a mama poletela nazad.
*073: ona xotela Vogel@err@csr zabrat'.
*073: a potom ptichka uletela.
*073: a potom [2] malen'kie Vogel@csr ostalis'.
*073: i ptichka uletela.
*073: a potom prishel Hund@csr.
*073: potom Katze@csr videla.
*073: tol'ko mama ushla.
*073: a detki ostalis'.

In German all stories were transcribed following the principles of CU:

(33)
*050: Und hier is(t) die.
*050: Und da kommt ein Fuchs.
*050: Jetzt, hat er die # fast aufgegess(e)n.
*050: Und da sitzt die auf ihn fest [?] [].
*050: Und jetzt schmeisst er das runter.
*050: Und jetzt # hm@i beisst er.
*050: Jetzt fliegt er wieder weg.

For better comparability of transcripts within one language, the procedure was not changed for the bilingual data, which were transcribed much later than the monolingual data. It should be noted, however, that, although the rules used for transcribing the data in the present study were slightly different for Russian and German with respect to the separation of clauses, these differences were irrelevant for the analysis, as each referential expression was additionally coded on a separate tier and all analyses were performed on the coded material only. Such measures as MLU (mean length of utterance) or number of clauses, which are usually done directly on the main tier where the method for separating utterances would be essential, were not performed. Therefore, any differences that might take place on the level of transcription, including differences in transcribing utterances, were eliminated on

the level of coding. As the complete transcripts containing both transcription and coding are rather long, the examples of transcribed and coded stories are given in Appendix C.

6.4 Narrative corpus

Although narrative data were collected from 90 bilingual children, between 28 and 32 per age group, some of them had to be excluded from the analysis for varying reasons already prior to transcription of stories (see section 6.1 of the current chapter with regard to bilingual participants). Several children did not tell a story at all in one of the languages. In both bilingual and monolingual samples some stories could not be used for technical reasons, e.g., too many side noises, a child speaking too incomprehensibly causing the transcription to contain too many unintelligible sequences and rendering the analysis of reference impossible, etc. Furthermore, in several stories the interferences from the examiner's side considerably influenced the course of the story and the use of referential expressions. These stories could not, therefore, be taken into consideration. It should be stressed though, that, in order not to influence the results, the stories' narrative quality in other respects was not a criterion for removal from the analysis.

Finally, the data of 60 bilingual participants (20 per age group, two stories in different languages were told by the same participants) and of 68 monolingual participants (35 in Russian and 33 in German) were taken for the final analysis, building a narrative corpus of 188 stories in total, as illustrated in Tables 2 and 3. Both bilingual and monolingual samples were counterbalanced in age, gender and distribution of stories. A more extensive description of participants whose data were taken for the final analysis is presented in Appendix D.

Table 2. Bilingual narrative corpus for final analysis

Age groups (mean age / mean LoE)	Number of bilingual participants	FOX Story in Russian	CAT Story in Russian	FOX Story in German	CAT Story in German	Number of narratives
4;00–4;11 (4;06 / 2;01)	20	8	12	12	8	40
5;0–5;11 (5;06 / 3;02)	20	10	10	10	10	40
6;00–6;11 (6;06 / 4;05)	20	11	9	9	11	40
Total	60	28	32	32	28	120

Table 3. Monolingual narrative corpus for final analysis

Age groups (mean age) Russian + German	Number of monolingual participants (Russian + German)	FOX Story in Russian	CAT Story in Russian	FOX Story in German	CAT Story in German	Number of narratives
4;01–4;11 (4;05) Russian 4;01–4;11 (4;06) German	24 (12+12)	6	6	6	6	24
5;02–5;09 (5;06) Russian 5;03–5;10 (5;06) German	23 (12+11)	6	6	6	5	23
6;00–6;05 (6;02) Russian 6;00–6;07 (6;03) German	21 (11+10)	6	5	5	5	21
Total	68	18	17	17	16	68

Although in the bilingual sample the stories were initially randomized per age group and language, after excluding data of several participants, the randomization in the analyzed data resulted in a small mismatch in the age groups of 4- and 6-year-olds. In the monolingual sample, there is a small mismatch in the number of stories per age group, varying from 10 to 12 and, as a consequence, the stories are not always evenly randomized. However, the differences are not considerable and are assumed not to affect the results.

6.5 Tracking discourse referents

Referential expressions had to be clearly identified before they could be coded for relevant parameters. For this purpose, an extensive qualitative, context sensitive analysis had to be performed for each story produced. First, in each transcribed story discourse referents used by a child had to be detected and determined, e.g., bird and fox in the FOX story. If a child did not mention a fish, for example, during the whole story, then this discourse referent was not taken into account, as it was not part of the child's discourse. The next step was marking all referential expressions used for referring to the determined discourse referents. The interaction between the story protagonists throughout the whole narration was tracked and carefully documented with regard to certain parameters. All mazes, i.e., repetitions, false starts, unintelligible or discontinued clauses as well as side

remarks (sentences that were not part of a story), were marked as such, i.e., ignored on the level of coding and not considered for the analysis.

In the present study, only those referential expressions which refer to discourse topics are taken into account. While it is quite clear that story protagonists are considered to be discourse topics, there are cases when it is not as clear. For example, all occurrences of noun phrases dealing with the setting of the story, e.g., *the tree* in *The bird is sitting on the tree* or *the table* in *The fish is on the table*, used only for this purpose, were left out. However, if a referent is promoted to a discourse topic, e.g., in a sequence *The bird is sitting on the tree / The tree is very high,* the word *tree* would be analyzed as a discourse referent. It would also be considered as such, if a referent has the potential to become a discourse topic, e.g., *a worm* in a sentence *The mother-bird flew away and brought a worm and baby-birds ate it*, it was considered in the analysis. In the end, the decision about which expressions to take into account depended on each child's individual story.

All discourse referents had to be accurately tracked throughout a story, taking into account the fact that the way they are encoded by children is often ambiguous, at least on the surface, e.g., individual preferences for marking specific referents, lexical choice, code-switching, etc. Thus, each story had to be analyzed not only from the listener's point of view but also from the speaker's point of view – sometimes one had to literally put oneself in the child's mind in order to understand which discourse referent the child was referring to with this or that referential expression.

In addition, in cases involving code-switching, certain difficulties were experienced with some identified referential expressions in bilingual narratives if the form of a referential expression did not correspond, at first glance, to any of the available discourse referents. In order to determine a referent in such a case, a very careful qualitative analysis of the whole story had to be performed. In most cases, the ambiguity could be clarified through patterns used by a child throughout the story, e.g., if he or she often used referential expressions in a gender different from the target language but adequate in his/her other language. For example, always referring to the bird in Russian with *on* (he3SG.MASC), even though it is feminine (thereby transferring German gender for the noun as *bird* in German is masculine), or vice versa, referring to the bird in German with *sie* (she3SG.FEM) and *die Vogel* (the-bird.FEM.NOM), even though it is masculine. Sometimes, the ambiguity could be resolved with the help of the story content as, for example, it is known that the mother-bird is not chasing the dog in the CAT story or with the help of semantic components, e.g., the fact that cats do not fly (not even in the presented invented stories), etc.

At the end, each story was checked again for any remaining errors, any possible additional interpretations, etc. Finally, the referential expressions were coded according to the parameters presented and illustrated in the next section.

6.6 Coding system

The coding system was elaborated upon the parameters essential for the analysis of referential expressions that play a role in referential choice. In addition, given the labour-intensive nature of coding new data, those parameters that were not central for the present study but could be relevant for the general analysis of reference were also coded and reserved for more extensive analyses in future studies. The coding parameters are presented below, but first, a short description of the units of analysis is given.

6.6.1 Units of analysis

First and foremost, a basic unit of analysis is the referential expression itself. However, as referential expressions occur not in isolation but as part of a discourse, they should be analyzed within the context that they occur in, e.g., sentential context. Given that there can be several referential expressions within one sentence and that their linguistic form (type of referential expression) often depends on the internal syntactic constraints at clause level (e.g., in sentences with coordinate and subordinate clauses), not the sentence but the clause was taken as a basic unit of analysis. The clause is defined by Berman and Slobin (1994:660) as “any unit that contains a unified predicate”.

Since discourse referents (the story’s protagonists) can be conveyed through the narrative as either subjects or objects, all occurrences of discourse referents in any grammatical role were taken into account. Recall that all mazes (repetitions, false starts, discontinued or unintelligible sentences) as well as all sentences/remarks which did not concern the story were excluded from the analysis.

6.6.2 Coded parameters

Each coded expression contains information about the exact wording used by a child, description of its linguistic form (type of referential expression), grammatical role (syntactic function) and case, topic status, syntactic environment (type of clause, syntactic position, type of clause with respect to the verb, and additionally in German, syntactic field), information status, referential distance to the antecedent as well as a short description of the antecedent (syntactic function and type of referential expression), discourse status, and, finally, respective discourse referent. The complete overview of coded categories as well as respective abbreviations is given in Table 4.

The parameters are presented in the order of coding of each particular referential expression. Additional remarks on facilitating the understanding of coded categories and the interpretation of specific cases are given below. Several of the coded parameters are not directly used for the analysis in the framework of the present study, serving as supporting categories for coding the main ones or being useful for additional analyses of specific phenomena which can be performed in the future research. Examples of coding are given in subsection 6.6.3 to illustrate the process of coding.

Table 4. Coded parameters

Type of topic	T=single topic; T1=primary topic; T2=secondary topic; T3=additional topic; TD=dislocated topic
Type of referential expression	bareN=bare noun; defNP=definite noun phrase; indefNP=indefinite noun phrase; demNP=demonstrative noun phrase; possNP=possessive noun phrase; PRO=personal pronoun; DEM=demonstrative pronoun; 0PRO=zero pronoun
Syntactic function	S=subject; DO=direct object; IO=indirect object; PO=prepositional object; S2=dislocated S; DO2=dislocated DO; IO2=dislocated IO; PO2=dislocated PO
Case	NOM=nominative; GEN=genitive; ACC=accusative; DAT=dative; INSTR= instrumental; LOC=locative
Type of clause	Mn=main clause; Rel=relative clause; Sub=subordinate clause; DS=direct speech
Type of clause with respect to verb	Vfin=with a finite verb; 0Vfin=without a finite verb; 0V=without a verb
Syntactic position relative to verb	PreV=preverbal position; PostV=postverbal position
Syntactic field (in German)	PF=prefield; MF=middle field; PostF=postfield; LD=left dislocation; RD=right dislocation
Information status / Degree of accessibility	New=new (previously unmentioned, introduced into the discourse); Giv=given (mentioned in the previous clause); Acc=accessible (already mentioned but not in the previous clause)
Referential distance to antecedent	C0=previous clause / same CU; C1=previous clause / different CU; C2=two clauses back; C3=three or more clauses back
Syntactic function of antecedent	S=subject; DO=direct object; IO=indirect object; PO=prepositional object; S2=dislocated S; DO2=dislocated DO; IO2=dislocated IO; PO2=dislocated PO
Type of referential expression of antecedent	bareN=bare noun; defNP=definite noun phrase; indefNP=indefinite noun phrase; demNP=demonstrative noun phrase; possNP=possessive noun phrase; PRO=personal pronoun; DEM=demonstrative pronoun; 0PRO=zero pronoun
Discourse status	FM=first mentioned, introduced into the discourse; M=maintained; RI= reintroduced
Reference to discourse referents (story characters)	Ref=reference bird1, fox, fish (FOX story) m-bird=mother/mama bird, p-bird=papa bird; b-birds=baby birds, cat, dog, eggs, nest, worm, etc. (CAT story)

Type of topic

Type of topic is the first parameter coded, as it is important to determine the number of discourse referents and their topic status in the sentence (see also Chapter 2, section 2.2. for more details on the issue of topic). Whereas the single (T) or primary topic (T1) refer to the subject of the sentence, the secondary topic (T2) refers to the direct, indirect, or prepositional object, and the additional topic (T3) refers to the indirect or prepositional object, in case T2 is occupied by a direct object. The hierarchy is simple: in sentences with only one topic, it is usually the subject (in this case coded as a single topic), whereas in sentences with multiple topics the subject is coded as a main topic of the sentence and the object as a secondary topic. In cases with more than one object, the direct object becomes the secondary topic and the indirect or prepositional object – the additional topic. Theoretically, T1 could be an object too, in cases of object topicalization, but such cases were not detected in the analyzed data.

Omitted topics, subjects or objects, are coded as zero pronouns (0PROs) and are attributed a topic status according to the corresponding sentence. Dislocated elements are coded separately as dislocated topics (TD) so that they are not mixed with the topics already available in a sentence, presented by referential expressions in a different linguistic form. Different topic status may also be an additional factor for encoding referents in the discourse and give clues about differences in the use of referential expressions.

Type of referential expression

The type of referential expression is coded crosslinguistically, i.e., the same coding is used for both languages. With regard to bare nouns (bareNs) in Russian, each occurrence of these is consistently coded as a bare noun (a noun phrase consisting of a noun only) and not as a bare noun phrase (a noun phrase without an article which can contain additional modifiers, such as adjectives), since practically all occurrences in the data were bare nouns only. Therefore, also in the analysis of the data and in the description of the results, the reference is always made to bare nouns, not to bare noun phrases. With regard to indefinite noun phrases (indefNPs) in German, plural indefinites, such as *Kinder* (children), are coded as indefNPs and not as bareNs, despite the lack of article (which is grammatically correct in German). Only nouns which require an article in the given context are coded as bareNs.

In cases of code-switching (morphological and lexical) in bilingual children, the linguistic form of a referential expression is considered in its produced form and not as its equivalent in the target language. For example, if a child uses a German word together with an article in Russian, e.g., *die Vogel (the bird)* instead of *ptica (bird),* it is coded as a definite noun phrase (defNP), even though there is no such type of referential expression in Russian. If a noun (transferred from another language) is used without an article, then it is coded as a bare noun (bareN), e.g., if a child uses *koshka (cat)* instead of *die Katze (the cat)* in German, it is coded as bareN and not as defNP.

If discourse referents are omitted, then all omitted subjects are taken into account and coded as zero pronouns (0PROs). As for the omitted objects, only those which are obligatory verb arguments are considered for coding, e.g., in the case of transitive and ditransitive verbs. Whether the use of 0PROs is grammatically appropriate in each particular case is not explicitly coded but can be analyzed on the basis of different combinations with other parameters.

Grammatical role (syntactic function)

Each analyzed referential expression is coded for its grammatical role (syntactic function) in a clause: subject, direct, indirect, or prepositional object. If it is not clear straight away from the syntactic constraints (it is not rare that young bilingual children who experience difficulty with case marking use inappropriate case or no case at all for subjects and objects), then the syntactic function is determined based on the semantic constraints provided by the story context or semantic content of verbs.

In case of the presence of dislocated elements in a clause, their syntactic function is coded separately as dislocated subjects (S2) and dislocated objects (O2, IO2, PO2) because otherwise there will be double subjects or objects in one clause.

Case

The variability in the use of case is documented in all coded referential expressions in both analyzed languages. The case marking is closely related to the syntactic function of referential expressions. Given the differences in the case systems of Russian and German, the produced case can be traced and analyzed with regard to discrepancies between syntactic function and produced case (especially used for expressing the indirect object) as well as to relationship between case diversity (complexity of the case system) in child narrative discourse and the distribution of information in the sentence or word order. In ambiguous contexts where, e.g., in German *sie (she.NOM/ACC)* or *die Katze (the cat.NOM/ACC)* have the same linguistic form in nominative (NOM) and accusative (ACC) cases, the case is coded according to the syntactic function of the respective referential expression in the sentence.

Type of clause

One of the coding parameters for each analyzed referential expression is the type of clause in which it occurs: main, subordinate, relative, or direct speech clause. In sentences consisting of two or more coordinate clauses, each clause is coded as a main clause. However, if both clauses have the same subject, which is omitted in the second clause, it is marked accordingly when coding the referential distance to the antecedent in order to disambiguate between coordinate clauses with same (coreferential) and different subjects (C0 for the same subject, C1 for different subject).

Type of clause with respect to verb

Each coded referential expression is analyzed not only with regard to the syntactic type of clause but also as type of clause with respect to the verb: clause with a finite verb (Vfin), without a finite verb (0Vfin) or without any kind of verb (0V). In the latter case, these are instances when children produce utterances such as *Vogel (bird)* in German or z*des' ptica (there bird)* in Russian. A 0Vfin-clause can be a clause that is part of a coordinate construction, such as *Der Vogel hat ihn gesehen und 0Vfin 0PRO dann geschnappt (The bird has seen him and then grabbed),* where the second clause has no finite verb. Such verb omissions are grammatically acceptable in German and the corresponding clauses are coded as clauses without a finite verb.

It should be added that all clauses where the syntactic position of a referential expression relative to the verb can be determined are not explicitly coded as clauses with a finite verb because the definiteness of a referent is given through coding of the syntactic position (otherwise the position could not be determined). However, if discourse referents are omitted and referential expressions are therefore coded as zero pronouns (0PROs), the position of a referential expression cannot be determined despite the presence of the finite verb. Instead of it the type of clause with respect to the verb is coded as clause with a finite verb (Vfin).

Syntactic position relative to verb

The syntactic position of a referential expression relative to the verb is coded in terms of preverbal or postverbal positions as well as left or right dislocations as the case may be (in each analyzed clause). This parameter can give information about the relation between word order and information status of discourse referents, especially in Russian (see Chapter 4 for more details), and, taken in combination with the syntactic function of referential expressions, it can shed light on preferences concerning the syntactic position of subjects and objects in child narrative discourse in both analyzed languages.

Technically, if a clause does not contain a finite verb, then the position of a referential expression cannot be determined, and only the absence of the finite verb is coded (0Vfin). In case when discourse referents are omitted (referential expressions are coded as zero pronouns in this case), their position relative to the verb cannot be determined (see also the previous passage). Naturally, in verbless clauses the position of a referential expression relative to the verb cannot be determined either. In such a case, only the type of clause with respect to the verb is coded as verbless (0V).

The syntactic position of dislocated elements is coded as left (LD) and right (RD) dislocations depending on their position so that they are not confused with other preverbal or postverbal referential expressions in the core structure of the same clause. In the present study, they are not under the scope of analysis, but they are worth coding in order to see whether children use such referential means at all in the target age groups. A more profound analysis of dislocated elements can be done in the future.

Syntactic field (in German)

The coding of syntactic field is performed in German only, as Russian does not have a fixed verb position in a sentence. This parameter is important for accounting for differences in functions of preverbal and postverbal positions in Russian and German. In a German main clause only one element can be preverbal (except for dislocated elements, which have different status); in Russian, several elements can be either preverbal or postverbal. As bilingual children may have some difficulties with the fixed verb position in German, at least at the earlier stages of language acquisition, the interactions between Russian and German in this respect can be documented and analyzed.

Information status

The coding of the information status *new, given,* or *accessible* is based on the activation status of a discourse referent at each particular moment in the discourse as well as on the degree of accessibility measured by referential distance to its antecedent. Thus, as already described in Chapter 2, section 2.2, a previously unmentioned referent is coded as *new* (New) being inactive in the listener's consciousness. A continuously maintained referent (mentioned in the previous clause) is coded as *given* (Giv) being highly activated. Finally, a referent which was previously mentioned but not continuously maintained (mentioned in the second or further clause back) is coded as *accessible* (Acc) since it is semi-activated.

Referential distance to the antecedent

As stated in Chapter 2, section 2.2, the referential distance to the antecedent is one of the major factors that can influence referential choice, as it is tightly bound to the referent's degree of accessibility. In the framework of this study, it is measured by the linear distance of the anaphor to its antecedent on the clause basis, mentioned in the previous, second, or more than two clauses back. An additional differentiation was made with regard to mentions in the previous clause: if the antecedent is in the previous clause that is part of the same CU (e.g., in case of main and subordinate clauses or in case of coordinate clauses with a coreferential subject that is omitted in the second clause), then the referential distance is coded as C0; if the antecedent is in the previous clause which is not part of the same CU, it is coded as C1; the referential distance to the antecedent in the second clause back is coded as C2; and the distance in more than two clauses back is coded as C3.

The referential distance coded as C0 or C1 refers to the information status *given* (Giv), whereas C2 and C3 refer to the information status *accessible* (Acc). In cases with no antecedent, the referential distance is not coded, and the information status is coded as *new* (New).

Type of referential expression and syntactic function of the antecedent

The type of referential expression of the antecedent as well as its syntactic function are important coding parameters, as they offer valuable information about the topic shift and changes in referential choice in referring to discourse referents. The coding constraints on these parameters are the same as for coding the type of referential expression and their syntactic function of the anaphor presented above.

Discourse status

The discourse status of a referent is coded as *first mentioned* (FM), *maintained* (M), or *reintroduced* (RI). In fact, it correlates with the information status of a referent and is coded accordingly. If the information status is *new* (New), then the discourse status is coded as FM; if the information status is *given* (Giv), then the discourse status is coded as M; and if the information status is *accessible* (Acc), then the discourse status is coded as RI.

Discourse referents (story characters)

For each coded referential expression, a respective referent is identified and coded together with other parameters. There is a large variety of labels children use to refer to the story characters and discourse referents in general. Although children are very creative in labelling, what is important is to which discourse referent they refer with this or that name. In the overview of coded categories given above, the "official" labels of story characters (*bird, fox,* and *cat* in the FOX story; *mother bird, baby birds, cat*, *dog* in the CAT story) are listed, including a small variety of additional discourse referents produced by children (*father bird, eggs, worm*, etc.). The reference to discourse referents is coded not only for the purposes of categorization but also for future analysis of correlation between type of referential expression and a specific discourse referent (e.g., as in the case of thematic subject strategy).

6.6.3 Examples of coding

An example of a coded referential expression containing all parameters given in the overview looks as follows:

(34) die mama|T-defNP-S-NOM-Mn-PreV:PF-Acc:C2:S:defNP-RI-Ref=m-bird

Even without context this example can be decoded. The presented referential expression with the linguistic form *die mama (the mother)* is a single topic of the clause (T); the type of referential expression is definite noun phrase (defNP); it is the subject of the clause (S); the produced case is nominative (NOM); it is part of the main clause (Mn) with the finite verb in the preverbal (PreV) position, and the syntactic field is the prefield (PF); the information status is accessible (Acc), the referential distance to the antecedent is 2 clauses (the

antecedent was mentioned in the second clause back, C2), the antecedent is the subject of the clause (S) and the type of referential expression is a definite noun phrase (defNP); the current discourse status of the given referent is reintroduced (RI), and it refers to the *mother-bird* (Ref=m-bird), a character from the CAT story.

Coded units are separated by delimiter symbols (-) or (:), which can be processed by CLAN. At the same time, delimiter symbols are combined so that similar units referring to different referential expressions can be disambiguated later, when the data are processed with CLAN. For example, in order not to confuse coded parameters referring to an actual referential expression with those referring to its antecedent containing partly the same parameters, the type of referential expression and its grammatical role are separated by (-) in the first case and by (:) when coding the antecedent, as illustrated in example (35):

(35) die|T2**-DEM-DO**-ACC-Mn-PostV:MF-Giv:C1**:DO:DEM**-M-Ref=fish

Referential expressions were always coded within the context of the story. The following example demonstrates how the coding looks for a complete sentence in one of the German stories:

(36) FOX story (German) (*011, 4;2, bilingual)

*011: Dann kommt der Fuchs und moechte die auffress(e)n.
%cod: der Fuchs|T-defNP-S-NOM-Mn-PostV:MF-New-FM-Ref=fox
word[65]|T1-0PRO-S-Mn-Vfin-Giv:C0:S:defNP-M-Ref=fox
die|T2-DEM-DO-ACC-Mn-PostV:MF-Giv:C1:DO:DEM-M-Ref=fish

Then come$_{PRS:3SG}$ the$_{M:SG:NOM}$ fox$_{M:SG:NOM}$ and Ø want$_{PRS:3SG}$ she$_{DEM-F:3SG:ACC}$ eat-up$_{INF}$
Then the fox comes and wants to eat her.

6.7 Methods of data analysis

The initial quantitative data analysis was carried out using the CLAN program (MacWhinney 2000). CLAN is very useful, especially for processing different combinations of parameters. With the help of various formulae, each parameter can be analyzed in isolation or in combination with any number of other parameters coded in the same set of data (different formulae and combinations can be looked up in CLAN-Manual, MacWhinney 2000). For example, if one needs to know how many times a specific type of referential expression, e.g., defNP, is used in a specific condition, e.g., preverbal position and subject of a main clause (as opposed to indefNP in the same syntactic environment) in all or in part of the data, it can be run in one step.

The numerical output of all analyzed parameters (raw values for each child) was entered into excel tables for further analysis. Descriptive statistics (mean values, percentages, standard deviations, etc.) were performed in excel or in R-program, further statistical analyses were carried out in R-program (R Core Team 2014). In all statistical analyses

[65] Omissions are not expressed through any word. For coding purposes, however, their linguistic form is simply designated as *word* (*0word* could not be used for technical reasons).

performed in this study, the expressions under analysis were normed with respect to the total number of referential expressions in the corresponding data set or category. All raw data values are given in Appendix E.

Different parametric and non-parametric tests were applied, depending on the data distribution and hypotheses to be verified.

First, the normality of the data distribution, or, better, its approximation, was checked and accounted for in the visual representation of the data using box plots. Box plots give extensive information about the data distribution: the box itself includes 50% of the data, whereas the lower boundary delimits the first quartile (25%) and the upper boundary the third quartile (75%); the line inside the box indicates the median, i.e., the middle observation, or the 50% quantile; the so-called whiskers (vertical lines outside the box) include data from the first and the fourth quartiles respectively and can be max. 1,5 times longer than the box itself; the dots below or above the whiskers indicate outliers. For more transparency and consistency with the analyses, the mean value of the group was also displayed in the box plot, represented by a large dot. Sometimes (very rarely though) the mean value of the group is displayed outside of the box due to the outliers whose values shift the mean value of the group up or down.

The following protocol was used for the choice of an appropriate statistical testing method. As a rule, in cases where the data are distributed within all quartiles with no or only single outliers, the data distribution is considered to be a good approximation to the normally distributed data. A certain number of outliers is not unusual in the analyzed type of data and the data size. Thus, they are taken into account for not trimming the data. It is not expected that this procedure would distort the data. In case the lower boundary of the box touches the bottom, or the upper boundary of the box touches the ceiling of the plot, the data are considered as not normally distributed. In uncertain cases, additional Q-Q plots were built (with the help of the car R-package) in order to verify if the residuals lie within the confidence band. Thus, both visual representation in the form of box plots and Q-Q plots (wherever needed) were taken into consideration when deciding on parametric vs. non-parametric tests.

For the direct comparison of two groups with a good approximation to the normal data distribution[66] the following parametric tests were performed:

- one-sided and two-sided Welch Two Sample t-test,
- paired t-test (for dependent samples, e.g., when the performance of the same children is compared across languages).

For the direct comparison of two groups with the data which are clearly not normally distributed, the following non-parametric tests were performed:

- one-sided or two-sided Wilcoxon Rank Sum Test (equivalent to the Mann-Whitney-U-Test),

[66] In descriptions of the results, the indication “good approximation to the normal data distribution“ is alternatively labelled as “near normal data distribution”.

- Paired Wilcoxon Signed Rank Test (for dependent samples),
- Fischer test (for a small number of observations).

T-tests and Wilcoxon tests were used either as one-sided or two-sided, depending on the hypothesis: if the null hypothesis (H0), stating that both groups are equal, was applied then two-sided tests were performed; if the hypothesis stated that one group was predicted to use more (or less) of the expressions under analysis, then one-sided tests were performed. Two-sided tests were considered default and are therefore not explicitly mentioned while describing the results. When one-sided tests were performed, this is always indicated in the description of the results.

The analysis of variance across age groups was performed with different methods depending on the data distribution:

- One-way ANOVA for independent samples as well as one-way ANOVA for repeated measures (for dependent samples while comparing bilingual performance in Russian and German) were performed in case the data showed a good approximation to the normal distribution. The simultaneous tests for general linear hypothesis, in short, multcomp tests (multcomp R-package), were performed as post-hoc tests, with single-step method for p-value adjustment. The p-value should always be adjusted when the same hypothesis is tested multiply in order to achieve an overall significance level of 5%.
- Kruskal-Wallis Rank Sum test was performed in cases when the data were not normally distributed. Pairwise comparisons were performed as post-hoc tests using Wilcoxon Rank Sum Test. The p-values were adjusted using Holm's method.

In order to measure the interaction between samples and age groups (in Russian and German analyzed separately) as well as the interaction between languages and age groups (in the crosslinguistic comparison of Russian and German), a two-factorial analysis of variance (two-way ANOVA for independent and dependent samples, depending on the data) was performed if the data presented a good approximation to the normal distribution. For the comparison of bilingual performance in Russian and German, a difference test was performed as an alternative if a two-way ANOVA could not be applied (with not normally distributed data). No such alternative exists for the comparison of monolingual samples where the data are not normally distributed. In this case, the interaction could not be analyzed statistically.

The following packages were used for the analysis of data as well as for building graphs/plots in R: car (Fox & Weisberg 2011), RColorBrewer (Neuwirth 2014), effects (Fox 2003), ez (Lawrence 2013), ggplot2 (Wickham 2009), multcomp (Hothorn, Bretz, & Westfall 2008), plyr (Wickham 2011), reshape2 (Wickham 2007).

7 Results

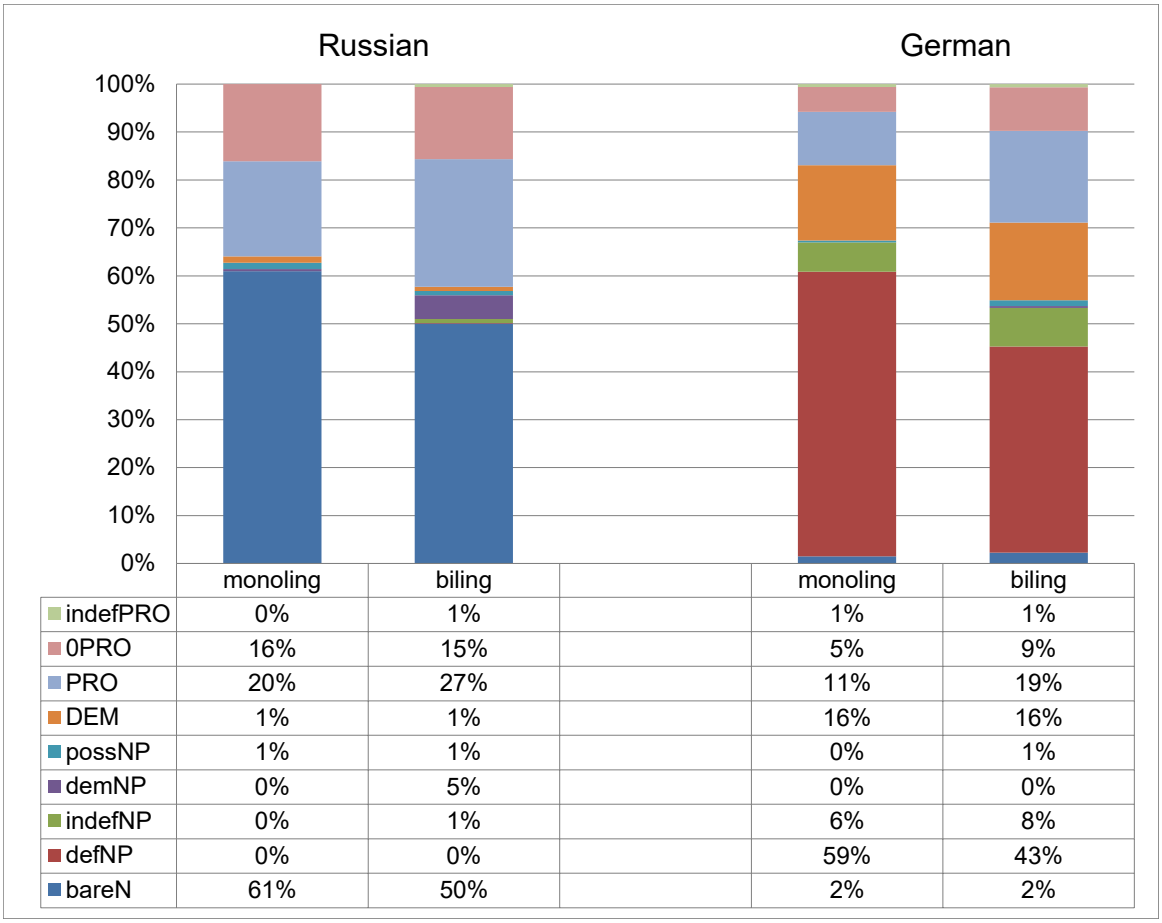
This chapter presents the results of the study in two sections. Section 7.1 presents the results on the grammatical use of referential expressions, i.e., the linguistic forms of identified referential expressions and their general distribution, in Russian and German. This relates to the first group of research questions in the grammatical domain (RQgr1). Subsections 7.1.1 and 7.1.2 present analyses of bilingual and monolingual data, in Russian and German respectively. In accordance with the group of research questions (RQgr2), related to monolingual and bilingual performance and development over age within each language, the samples are compared as a whole, within and across age groups. Special attention is given to possible crosslinguistic interactions. The developmental patterns and changes are considered for each type of referential expression in each language. Subsection 7.1.3 presents the crosslinguistic analysis of comparable types of referential expressions used in Russian and German narratives in bilingual and monolingual samples and relates to the research questions on crosslinguistic similarities and differences in the use of reference (RQgr3). Monolingual and bilingual samples are compared separately to trace the crosslinguistic and language-specific use of reference.

Section 7.2 presents the results on the pragmatic use of referential expressions, related to the first group of research questions in the pragmatic domain (RQpr1). In particular, the role of information status for referential choice (*new, given, accessible* – according to the classification presented in Chapter 2, section 2.2) is considered in detail, i.e., types and distribution of referential expressions which are used for introducing, maintaining, and reintroducing referents. Subsection 7.2.1 and subsection 7.2.2 present the results on the pragmatic use of referential expressions in Russian and German respectively. The analyses are presented separately for each information status. Analogously to the grammatical part, the samples are also compared as a whole, within and across age groups. Special attention is given to possible pragmatic crosslinguistic interactions. Developmental patterns and changes in bilingual and monolingual children as well as differences within and across age groups are analyzed in each language, in relation to the corresponding group of research questions (RQpr2) of this part of the analysis. Subsection 7.2.3 presents the pragmatic use of reference in crosslinguistic comparison, tracing crosslinguistic, more universal, or language-specific properties of referential expressions, which corresponds to the last group of research questions in this domain (RQpr3).

The summary of results is presented in a separate chapter (Chapter 8) together with discussion. This is done in order to provide a better overview of the findings for both languages simultaneously, in relation to the research questions, hypotheses, and specific predictions, using the same structure as presented in Chapter 5.

7.1 Grammatical use of referential expressions

This section gives an overview of the overall distribution of all types of referential expressions found in the data (see Figure 5), in both languages and both samples. A short description is given below; detailed descriptions and analyses for each particular referential expression are given in the respective subsections for each language and then in crosslinguistic comparison. Those types of referential expressions that are present only in one language (e.g., defNP in German) are analyzed in the respective language and kept in the figures in both languages for better comparability of the overall distribution as well as for crosslinguistic analyses.



	Russian monoling	Russian biling		German monoling	German biling
indefPRO	0%	1%		1%	1%
0PRO	16%	15%		5%	9%
PRO	20%	27%		11%	19%
DEM	1%	1%		16%	16%
possNP	1%	1%		0%	1%
demNP	0%	5%		0%	0%
indefNP	0%	1%		6%	8%
defNP	0%	0%		59%	43%
bareN	61%	50%		2%	2%

Figure 5. Types of referential expressions in Russian and German in monolingual and bilingual children: distribution by language and sample (in %)

In Russian, bareN is clearly the most frequent type of referential expression, with 61% in bilinguals vs. 50% in monolinguals, out of all produced referential expressions in the corresponding samples. Other nominal referential expressions are rare or completely absent: demNPs (5% in bilinguals and 0% in monolinguals), possNPs (1% in each sample), indefNPs (1% in bilinguals and 0% in monolinguals), and defNPs (0%) in both bilingual and monolingual samples. In the domain of pronominal reference two types of referential expressions are frequently used: PROs (27% in bilinguals and 20% in monolinguals, out of

all referential expressions in the corresponding samples) and 0PROs (15% and 16% respectively). DEMs, on the other hand, are used very rarely (1% in each sample), and there are only a few occurrences of indefPROs (1%) in the bilingual sample. From the point of view of the intralinguistic comparison, at first glance, there are some noticeable differences between bilingual and monolingual performance, which are analyzed in detail in subsection 7.1.1.

In German, a very different distribution can be observed. In the domain of nominal reference, defNPs are the most frequent type of referential expression used by bilingual and monolingual children, amounting to 43% in bilinguals and 59% in monolinguals. IndefNPs, on the contrary, are produced only in 8% and 6% of cases respectively.[67] Other nominal types of referential expressions are rare in both bilingual and monolingual samples. Very few bareNs[68] have been found in the data (equally 2% in both samples). Similarly to Russian, possNPs have been used only occasionally (1% in bilinguals and 0% in monolinguals). Contrary to Russian, no demNPs have been produced in either sample. With regard to pronominal reference, all three major pronominal types of referential expressions are strongly present: DEMs[69] are equally distributed in both samples amounting to 16%; PROs are more frequent in bilinguals (19% vs. 11% in monolinguals); 0PROs are present in both samples (9% and 5% respectively). Thus, some obvious differences in bilingual and monolingual performance have been found here as well, which are analyzed in more detail in subsection 7.1.2.

7.1.1 Russian

Figure 6 displays the overall distribution of referential expressions in Russian in bilingual and monolingual samples per age group. The referential systems presented as a whole give a better overview of the distribution and development of particular types of referential expressions in relation to each other.

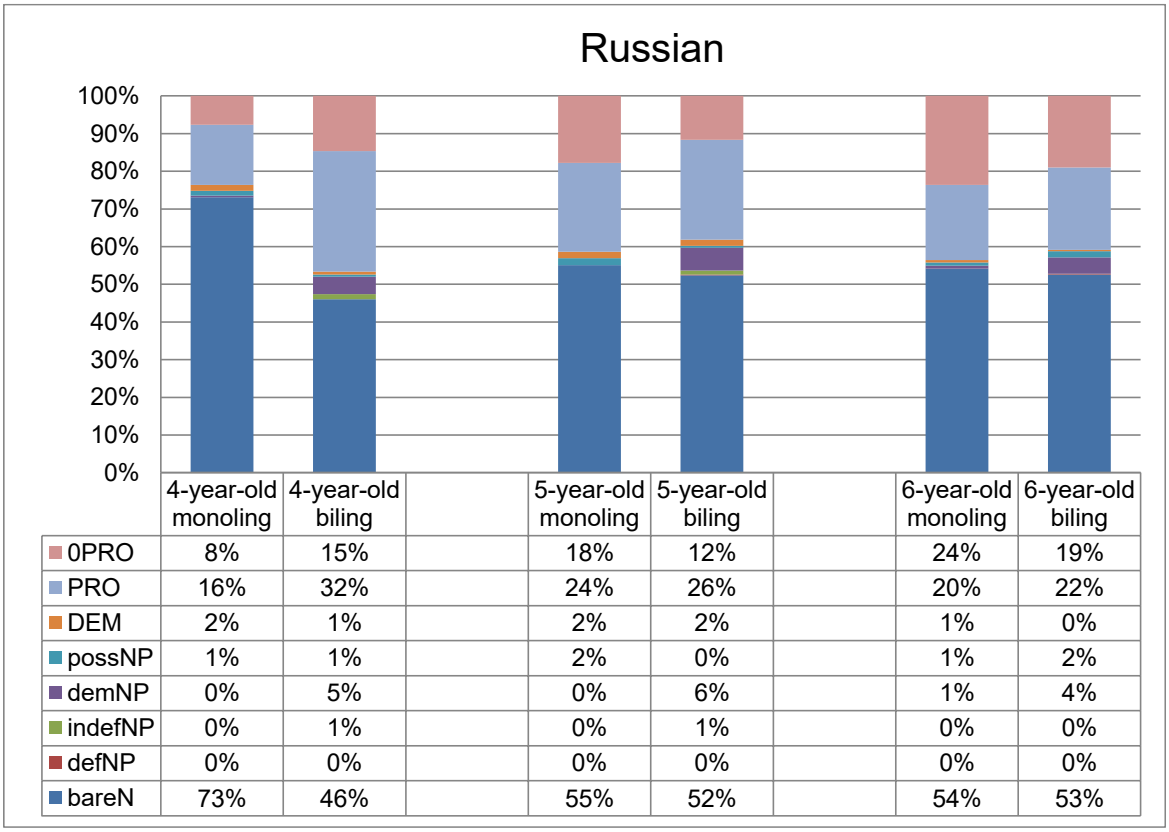
The percentage of the most prominent referential expressions varies considerably across age groups: 46% to 53% in bilingual children vs. 54% to 73% in monolingual children for bareNs; 22% to 32% in bilinguals vs. 16% to 24% in monolinguals for PROs; and 12% to 19% in bilinguals vs. 8% to 24% in monolinguals for 0PROs. The percentage of demNPs in bilingual children has a nearly even distribution across all age groups (from 4% to 6%). Other types of nominal and pronominal expressions in Russian, such as in/defNPs, possNPs as well as DEMs and indefPROs, are absent or marginal in both samples, ranging from 0% to 2% in the different age groups.

[67] It should be stressed that the more extensive use of defNPs in both samples, compared to the use of indefNPs, arises from the fact that, ideally, indefNPs should be used only for introducing discourse referents, whereas defNPs can be used throughout the narration, referring repeatedly to discourse referents. Whether children use these two types of referential expressions accordingly is analyzed in section 7.2.

[68] As a reminder, in German, a referential expression has been coded as bareN only if used ungrammatically in place of in/defNP in singular; all plural indefinites have been coded as indefNPs.

[69] All demonstrative pronouns found in the German data were exclusively d-pronouns *der/die/das*.

Thus, the first impression is that there are differences in the use of certain types of referential expressions between bilingual and monolingual children, especially the use of bareNs and PROs in 4-year-olds or demNPs and 0PROs in all age groups. However, at this moment, it is too early to draw conclusions.



	4-year-old monoling	4-year-old biling		5-year-old monoling	5-year-old biling		6-year-old monoling	6-year-old biling
0PRO	8%	15%		18%	12%		24%	19%
PRO	16%	32%		24%	26%		20%	22%
DEM	2%	1%		2%	2%		1%	0%
possNP	1%	1%		2%	0%		1%	2%
demNP	0%	5%		0%	6%		1%	4%
indefNP	0%	1%		0%	1%		0%	0%
defNP	0%	0%		0%	0%		0%	0%
bareN	73%	46%		55%	52%		54%	53%

Figure 6. Types of referential expressions in Russian in monolingual and bilingual children: distribution by sample and age group (in %)

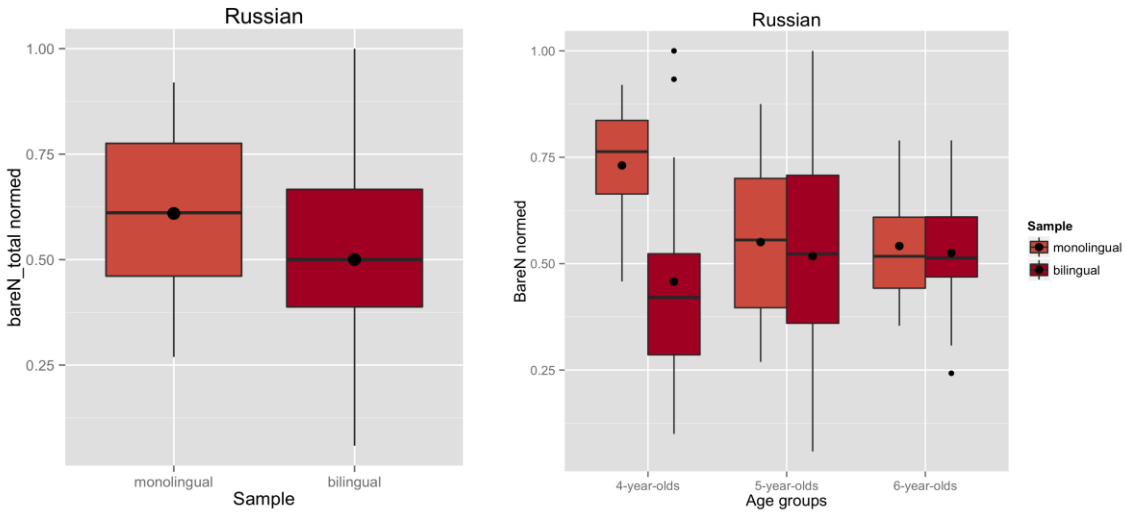
Below, each type of referential expression is analyzed in detail. First, nominal referential expressions are considered, then pronominal ones. The distribution of referential expressions is always presented in the whole samples and per age group in the form of box plots or bar plots, accounting for the data distribution within each analyzed group. In case one of the referential expressions under analysis is used only by a few children, the data size therefore being very small, the data are presented in the form of bar plots that display the number of children and the number of referential expressions used by these children.

7.1.1.1 Nominal reference

BareNs

With regard to the use of bareNs in the monolingual and bilingual samples taken as a whole (see Figure 7a), monolingual children clearly use more bareNs than bilingual children, 61% vs. 50% respectively. The difference is significant (Welch t-test, $t(75.111) = 2.61$,

p = 0.01**) with a high degree of confidence. However, when comparing the use of bareNs by monolinguals and bilinguals within different age groups (see Figure 7b), one can see that, despite the significant difference between the samples taken as a whole, the difference within age groups is striking only in 4-year-olds: 46% in bilinguals vs. 73% in monolinguals, which is indeed significant with a high degree of confidence (Welch t-test, t (29.011) = 3.87, p < 0.001***). In the older age groups, the difference vanishes completely: 52% and 53% in bilinguals vs. 55% and 54% in monolinguals in 5- and 6-year-olds respectively.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 7. BareNs in Russian

With respect to developmental changes in each sample, different patterns can be observed. In bilinguals, the use of bareNs slightly increases with age from 46% in 4-year-olds to 52% and 53% in 5- and 6-year-olds, whereas in monolinguals it decreases considerably from 73% in 4-year-olds to 55% and 54% in 5- and 6-year-olds. Based on the analysis of variance (one-way ANOVA) in each sample, there is a significant difference across age groups only in the monolingual sample (F (2, 32) = 4.38, p = 0.02*), which can be treated as a significant developmental change. To find out at what age the developmental shift takes place, each pair of age groups was compared using post-hoc simultaneous tests for the general linear hypothesis from the multcomp R-package[70]. The difference between 4- and 5- as well as between 4- and 6-year-old children in the monolingual sample is also significant with an adjusted p-value for multiple comparisons of means (p = 0.044* and p = 0.037* respectively), whereas the difference between 5- and 6-year-olds is hardly noticeable. It can be concluded that the developmental change (decrease) in the use of bareNs takes place in

[70] Further on, this type of post-hoc tests is referred to with a short form as „multcomp tests“.

monolinguals between age 4 and 5, whereas bilingual children seem to already be at a comparable level at age 4.

To test whether there is an interaction between samples and age groups, a two-way analysis of variance was performed. The result shows a significant difference (two-way ANOVA, $F(1, 89) = 3.10$, $p = 0.022$*). Thus, this difference indicates that bilingual and monolingual children have different developmental patterns. At the same time, the differences between the samples concern only 4-year-old children, whereas from age 5 children of both samples demonstrate similar performance and development. As expected, all children continuously use bareNs across age groups.

To demonstrate the typical use of bareNs in bilingual and monolingual children, the following examples are presented below:

(37) *Vorona letela i uvidela rybku*. (FOX, mr083, 4;11)
crow$_{F\text{-}SG:NOM}$ fly$_{IPFV\text{-}PST:SG:F}$ and see$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$
(A/the) crow flew and saw (a) fish.[71]

(38) *A potom ptica brosila, e~, rybu na lisichku*. (FOX, mr070, 6;3)
and then bird$_{F\text{-}SG:NOM}$ throw$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$ onto fox$_{F\text{-}SG:ACC}$
And then (a/the) bird threw (a/the) fish onto (a/the) fox.

(39) *Potom [2] lisa prishla*. (FOX, br003, 5;02)
then fox$_{F\text{-}SG:NOM}$ come$_{PFV\text{-}PST:SG:F}$
Then (a/the) fox came.

(40) *I volk ee ne dognal*. (FOX, br044; 6;5)
and wolf$_{M\text{-}SG:NOM}$ she$_{F\text{-}3SG:ACC}$ not catch$_{PFV\text{-}PST:SG:M}$
And (a/the) wolf did not catch her.

DemNPs

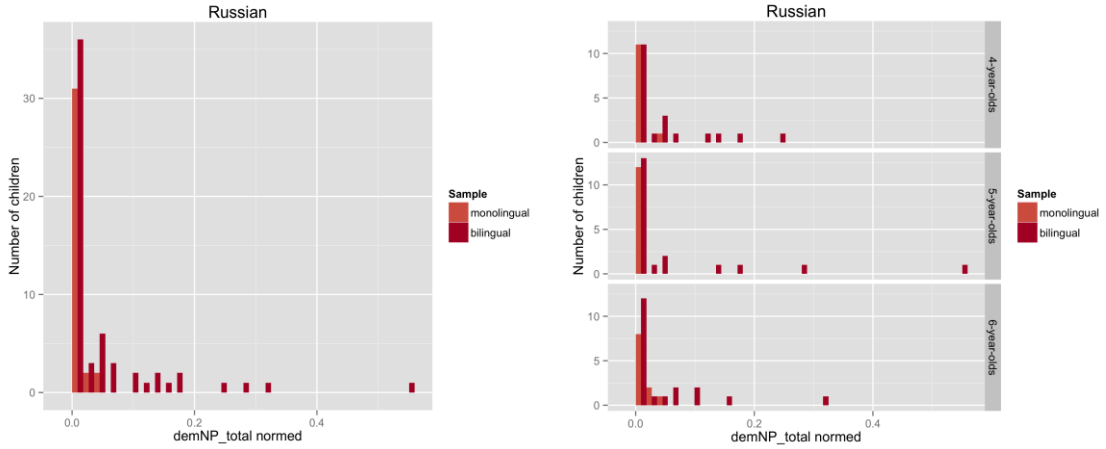
In the whole samples, the percentage of demNPs is 5% in bilinguals vs. 0% in monolinguals (more precisely 5,4% vs. 0,4% as there are several occurrences of demNPs in monolinguals as well), out of all referential expressions in each sample. Generally, the proportion of children who do not use this type of referential expression at all is quite high even in bilinguals (see Figure 8a). Statistically, comparing only the proportions of children using demNPs in bilingual (n=24 out of 60)[72] and monolingual (n=4 out of 35) samples, the difference turns out to be significant with a high degree of confidence (Fisher test, $p = 0.005$**). Thus, the unexpected use of demNPs in narratives seems to be characteristic for bilingual children, although several monolinguals also use it to a very low degree.

The use of demNPs across age groups (see Figure 8b) remains stable over age in bilingual children: 5% and 6% in 4- and 5-year-old bilinguals (n=9 and n=7 respectively) and

[71] As a reminder, those elements which are obligatory in English but do not exist or are omitted in Russian (e.g., articles, 0PROs, etc.) are put into brackets.
[72] The numbers in brackets indicate the number of children who use this particular referential expression. As the Fisher test compares the proportions of children using a particular referential expression, the numbers are given for better illustration of the results.

4% in 6-year-old bilinguals (n=8) out of all referential expressions in each age group, slightly decreasing between 5 and 6 years. No further statistical analysis was performed across age groups due to the very low number of current observations. It is presumed that no significant results can be expected.

In the monolingual sample, only one 4-year-old child and three 6-year-old children use demNPs at all. Statistically, comparing the proportions of bilingual and monolingual children using demNPs within each age group, the difference is significant in 4- and in 5-year-olds (Fisher test, p = 0.0496* and p = 0.029* respectively) but not in 6-year-olds. The significant differences indicate that the use of demNPs can be attributed to the bilingual sample and that their use is not proper to a single age group.



a. Whole samples b. Age groups

Figure 8. DemNPs in Russian

The following examples demonstrate the use of demNPs in bilingual children:

(41) *Potom e~ta ptica vzjala* (FOX, br032, 6;10)
then this$_{F\text{-}SG:NOM}$ bird$_{F\text{-}SG:NOM}$ take$_{PFV\text{-}PST:SG:F}$
v svoj kljuv e~tu rybu.
in its.own$_{M\text{-}SG:ACC}$ beak$_{M\text{-}SG:ACC}$ this$_{F\text{-}SG:ACC}$ fish$_{F\text{-}SG:ACC}$
Then this bird took this fish in its beak.

(42) *I potom e~ta vorona kinula rybu.* (FOX, br003, 5;2)
and then this$_{F\text{-}SG:NOM}$ crow$_{F\text{-}SG:NOM}$ drop$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:ACC}$
And then this crow dropped the fish.

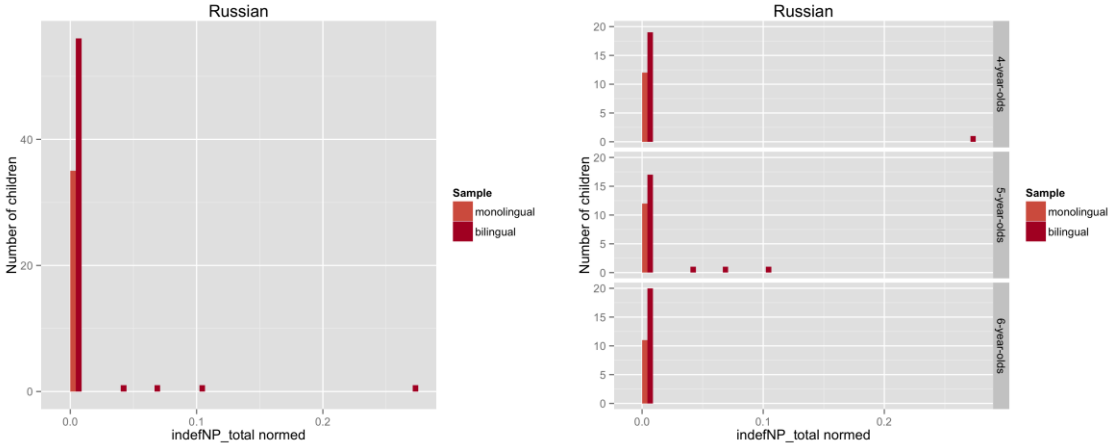
One of the rare occurrences of demNPs in monolingual children is demonstrated in (43):

(43) *I lisa vzjala e~tu rybu.* (FOX, mr070, 6;3)
and fox$_{F\text{-}SG:NOM}$ take$_{PFV\text{-}PST:SG:F}$ this$_{F\text{-}SG:ACC}$ fish$_{F\text{-}SG:ACC}$
And (the) fox took this fish.

The examples show no preference for the syntactic role or position of the referents expressed by a demNP. Rather, they suggest that demNPs are used to underline the definiteness of the noun phrases. This phenomenon is analyzed in more detail in the pragmatic part of the analysis and is discussed later on in the summary of results.

IndefNPs

With regard to the use of indefNPs, it has been assumed that bilingual children may use a slightly higher number of indefinite constructions (nouns with a specificity marker), such as *odna ptica* (one bird). These, though unusual, are also possible in Russian (see Chapter 4 for more details) and are analogous with the German indefNP. At the same time, it was not expected to find indefNPs in the monolingual data. Although several occurrences of indefNPs (1%) have been found in bilinguals (n=4), their use is exceptional (see Figures 9a for the whole samples and Figure 9b for age groups).



a. Whole samples b. Age groups

Figure 9. IndefNPs in Russian

Statistically, there is no difference in this respect between bilingual children and monolingual ones, who do not use indefNPs at all (Fisher test, p = 0.29 for the whole samples; p = 1 and p = 0.27 for 4- and 5-year-olds respectively). Given the extremely small data size, no other statistical tests were performed. Interestingly, even when bilingual children code-switch in indefinite contexts, they do not use indefNPs but rather bareNs in Russian, e.g., *Katze prishla (cat* (German) *came* (Russian)). Such instances have been coded as bareNs and not as indefNPs.

The rare use of indefNPs in Russian is demonstrated in the following examples:

(44) *Odna kiska xochet, m, ptichku skushat'.* (CAT, br070, 4;6)
one$_{F\text{-}SG:NOM}$ cat$_{F\text{-}SG:NOM}$ want$_{IPFV\text{-}PRS:3SG}$ bird$_{F\text{-}SG:ACC}$ eat$_{INF\text{-}PFV}$
A/one cat wants to eat (the) bird.

(45) *Priletela ptichka i dat' # i &da dala kazhdomu cyplenka@errn +//.*
fly$_{PFV\text{-}PST\text{:}SG\text{:}F}$ bird$_{F\text{-}SG\text{:}NOM}$ and give$_{PFV\text{-}PST\text{:}SG\text{:}F}$ each chick$_{M\text{-}SG\text{:}DAT}$
cyplenkam@errn odin@errnum chervjachok@errn. (CAT, br39, 5;6)
chick$_{M\text{-}PL\text{:}DAT}$ one little.worm$_{M\text{-}SG\text{:}ACC}$
(A) bird flew in and gave to each chick, chicks a/one little worm.

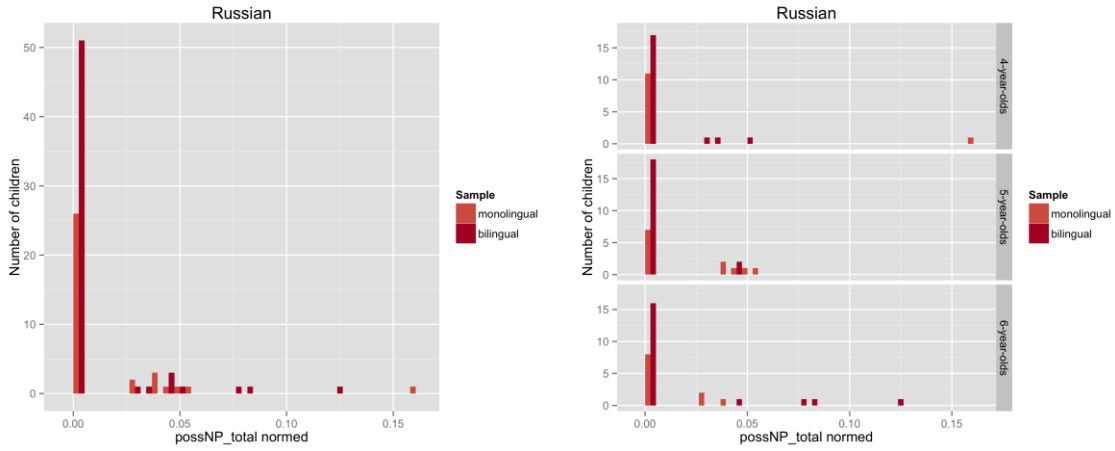
DefNPs

With regard to the use of defNPs, it was not expected that they would be found in Russian in either sample, as this type of referential expression is not encoded grammatically. The only example of a defNP in Russian is due to sentential code-switching where the whole noun phrase is used in German:

(46) *Vot e~ta sobachka von@csr der Katze*
Here this$_{M\text{-}SG\text{:}NOM}$ dog$_{M\text{-}SG\text{:}NOM}$ from the$_{DEF\text{-}F\text{-}SG\text{:}DAT}$ cat$_{F\text{-}SG\text{:}DAT}$
ee Schwanz@csr tak gezogen@csr. (CAT, br078, 6;11)
her$_{F\text{-}SG\text{:}ACC}$ tail$_{M\text{-}SG\text{:}ACC}$ this.way pull$_{PTCP\text{-}PST}$
Here the dog pulled the tail of the cat this way.

PossNPs

With regard to the use of possNPs, it should be said that possNP is not a typical referential expression for the given type of child narrative discourse. This is because the characters in the narratives are mostly clearly defined and do not require emphasis of their possessive relations. As was expected, only a few occurrences of possNPs were found in bilingual and monolingual samples (see Figures 10a and 10b), ranging from 0% and 2% in both samples. Overall, 9 children in each sample (out of 60 in bilinguals and out of 35 in monolinguals) use possNPs at all.



a. Whole samples b. Age groups

Figure 10. PossNPs in Russian

As no significant difference between the two samples could be found in either age group or as a whole (based on the results of the Fisher test, p = 0.28 for the whole samples; p = 1, p = 0.07, and p = 0.67 for 4-, 5-, and 6-year-olds respectively), it can also be stated that both bilingual and monolingual children use it to a similarly low degree. Here as well, no further statistical analysis was performed due to the low number of observations.

The rare instances of using possNPs can be illustrated by the following examples:

(47) *I potom [2x] s''ela e~ta lisa*
and then eat$_{PFV\text{-}PST:SG:F}$ this$_{F\text{-}SG:NOM}$ fox$_{F\text{-}SG:NOM}$
svoju rybu, rybku. (FOX, br032, 6;9)
her.own$_{F\text{-}SG:ACC}$ fish$_{F\text{-}SG:ACC}$ little.fish$_{F\text{-}SG:ACC}$
And then this fox ate its fish, small fish.

(48) *Vogel@csr i ego Kinder@csr [2].* (CAT, br073, 4;9)
bird$_{M\text{-}SG:NOM}$ and his$_{M\text{-}SG:NOM}$ child$_{N\text{-}PL:NOM}$
(A/The) bird and his children.

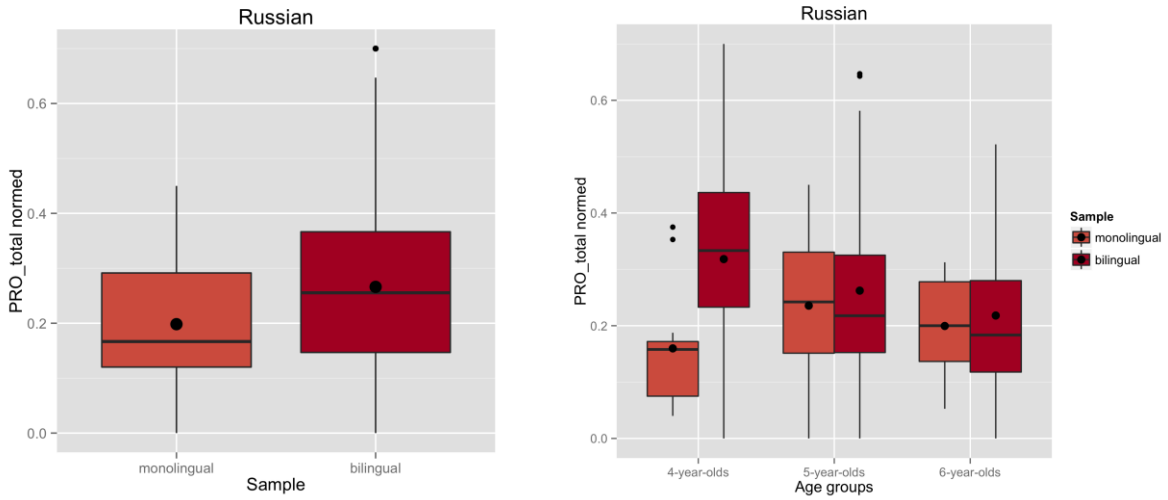
(49) *U vorony svoi cypljatki*. (CAT, mr087; 4;1)
at crow$_{F\text{-}SG:GEN}$ her.own$_{F\text{-}PL:ACC}$ chick$_{M\text{-}PL:ACC}$
(The) crow (has) its own chicks.

7.1.1.2 Pronominal reference

PROs

Comparing the use of PROs in the whole samples (see Figure 11a), one can see that bilingual children use more PROs than monolingual children (27% vs. 20% respectively), the difference being significant (Welch t-test, t (09.7) = -2.29, p = 0.024*). This finding does not support the corresponding hypothesis about similar performance in bilingual and monolingual children in Russian.

At the same time, comparison of the use of PROs within different age groups (Figure 11b) demonstrates that, whereas at age 4 the difference is striking, 32% vs. 16% in bilinguals and monolinguals respectively, which is significant with a high degree of confidence (Welch t-test, t (29.965) = -3.124, p = 0.004**), at age 5 and 6 there is almost no difference: 26% vs. 24% in 5-year-olds and 22% vs. 20% in 6-year-olds, in bilinguals and monolinguals respectively. The difference is not statistically significant for either age group (Welch t-test, t (27.98) = -0.46, p = 0.64 for 5-year-olds, t (27.491) = -0.45, p = 0.66 for 6-year-olds). In this way, bilingual children, starting with a much higher number of PROs than monolingual children at age 4, use practically the same number of PROs at age 5 and 6 as compared to monolinguals.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 11. PROs in Russian

With regard to the use of PROs in each sample across age groups, it can be seen that the use of PROs continuously decreases in bilinguals from 32% in 4-year-olds to 27% in 5-year-olds and to 22% in 6-year-olds. In monolinguals, on the contrary, it increases with age from 16% in 4-year-olds to 24% in 5-year-olds, with a subsequent slight decrease to 20% in 6-year-olds. The analysis of variance (one-way ANOVA), however, does not show a significant difference across age groups, either in the bilingual or in the monolingual sample ($F(2, 57) = 1.76$, $p = 0.18$ and $F(2, 32) = 1.29$, $p = 0.29$ respectively). Thus, although there is a tendency towards a decrease in the use of PROs in bilinguals and an increase in monolinguals with age, there is no crucial change across age groups. A two-factorial analysis of variance between samples and age groups in interaction could not show a significant difference (two-way ANOVA, $F(2, 89) = 1.98$, $p = 0.14$). The developmental patterns seem not to differ between the samples and the development over age can be considered similar, at least beginning from age 5.

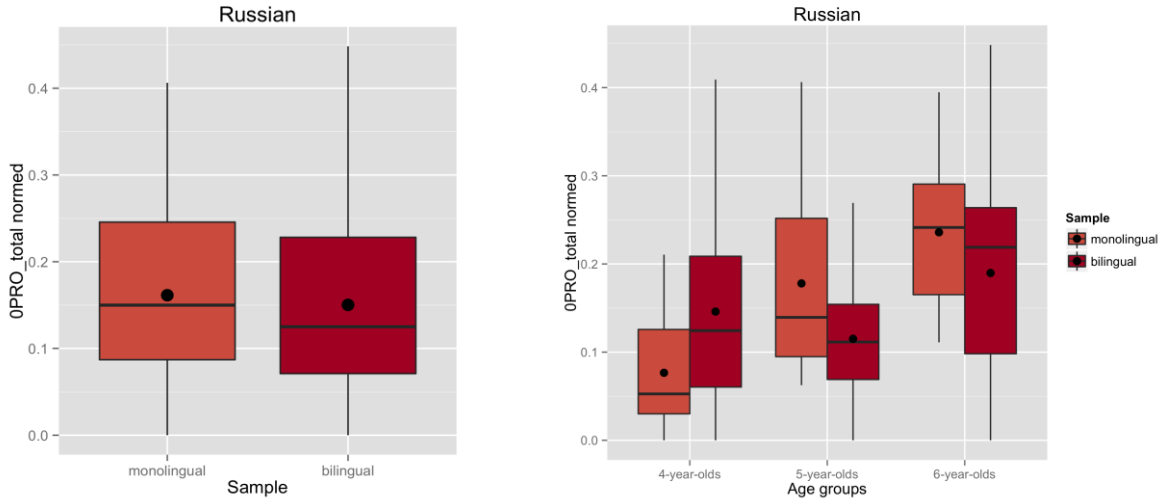
Bilingual and monolingual children use PROs in a similar way, as demonstrated in the following examples:

(50) *Ona xx # ona* *poshla* *kushat'* *iskat'*. (CAT, br052, 6;1)
she$_{F\text{-}3SG:NOM}$ go$_{PFV\text{-}PST:SG:F}$ eat$_{INF\text{-}IPFV}$ search$_{INF\text{-}IPFV}$
She went searching for (something) to eat.

(51) *Potom ona* *uletela*. (CAT, mr030, 5;2)
then she$_{F\text{-}3SG:NOM}$ fly.away$_{PFV\text{-}PST:SG:F}$
Then she flew away.

0PROs

In contrast to the use of PROs, there is clearly no significant difference in the use of 0PROs between the monolingual and bilingual samples taken as a whole: 16% in monolinguals and 15% in bilinguals, as can be seen in Figure 12a (Welch t-test, t (72.598) = 0.48, p = 0.63). This result confirms the expectation that bilingual performance should be similar to monolingual performance with regard to the use of 0PROs.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 12. 0PROs in Russian

The comparison within age groups, however, reveals the opposite picture (Figure 12b): the number of 0PROs used by bilingual and monolingual children is different in all age groups. Whereas 4-year-old monolinguals use fewer 0PROs than bilinguals of the same age (8% vs. 15%), 5- and 6-year-old monolinguals use more 0PROs than bilinguals (18% vs. 12% in 5- and 24% vs. 19% in 6-year-olds respectively). The statistical analysis confirms a significant difference in 4-year-olds (Welch t-test, t (29.997) = -2.06, p = 0.048*) but not for 5- or 6-year-olds (t (17.309) = 1.89, p = 0.076 and t (27.112) = 1.22, p = 0.23 respectively). Thus, these results indicate similar performance in bilingual and monolingual children for 5- and 6-year-olds but not for 4-year-olds.

From the developmental point of view, the use of 0PROs increases with age in both samples: from 8% in 4-year-olds to 18% in 5-year-olds and 24% in 6-year-olds in monolinguals and from 15% in 4-year-olds to 19% in 6-year-olds in bilinguals (with a slight decrease in-between to 12% in 5-year-olds). The analysis of variance across age groups in each sample reveals a significant variation in the monolingual sample (one-way ANOVA, F (2, 32) = 9.95, p < 0.001***), yet not in the bilingual sample (one-way ANOVA, F (2, 57) = 2.44, p = 0.096). The post-hoc tests confirm the significant difference between 4- and 5-year-old and between 4- and 6- year-old monolinguals (multcomp tests, p = 0.019* and

p < 0.001*** respectively). There is a significant interaction between samples and age groups (two-way ANOVA, F (2, 89) = 3.83, p = 0.025*). This result indicates that developmental patterns between monolingual and bilingual samples are indeed different. As has been shown above, in the bilingual sample there is no clear developmental pattern. At the same time, one can observe that 4-year-old bilinguals already perform similarly to 5-year-old monolinguals and that 6-year-old bilinguals do not differ from 6-year-old monolinguals.

The following examples demonstrate the typical use of 0PROs in the monolingual and bilingual samples. Children omit the subject of a coordinated clause or of an independent clause when the subject is a clearly identifiable topic of the preceding clause.

(52) *0word-s uletela*. (CAT, mr051, 5;8)
fly.away$_{PFV\text{-}PST:SG:F}$
(She) flew away.

(53) *A ptica ne xotela davat' 0word-o*
but bird$_{F\text{-}SG:NOM}$ not want$_{IPFV\text{-}PST:SG:F}$ give$_{INF\text{-}IPFV}$
i 0word-s otvernula golovu. (FOX, mr083, 4;11)
and turn.away$_{PFV\text{-}PST:SG:F}$ head$_{F\text{-}SG:ACC}$
But the bird did not want to give (it) and turned away (the) head.

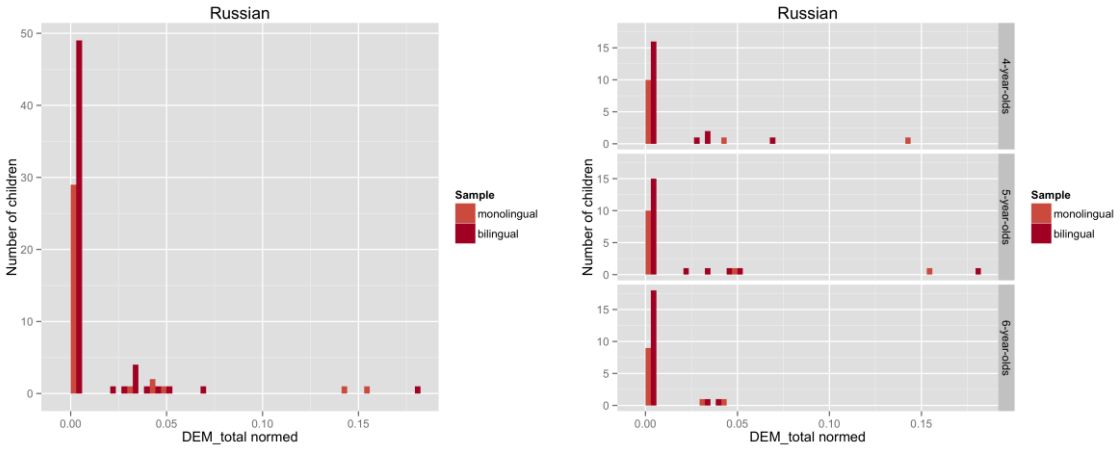
(54) *I 0word-s potom rybku vzjala*. (FOX, br017, 4;06)
and then fish$_{F\text{-}SG:ACC}$ take$_{PFV\text{-}PST:SG:F}$
And then (she) took (the) fish.

DEMs

DEM was initially considered to be a type of referential expression for a potential interaction with German in the bilingual sample. Contrary to this expectation, only a few occurrences were found in both bilingual and monolingual samples taken as a whole and across all age groups (see Figures 13a and 13b): 1% in each sample as well as 2% in 4-, 2% in 5-, and 1% in 6-year-old monolinguals; and 1%, 2%, and 0% in the respective age groups of bilinguals. Overall, only 11 bilinguals (out of 60) and 6 monolinguals (out of 35) use DEMs in this type of discourse.

It can be assumed that the use of DEMs in Russian is not age specific, as the proportions of children who use it on occasion are similar in each age group. However, given the very low number of children who use this referential expression in both samples, no proper statistical analysis across age groups can be done. At the same time, no differences could be observed in the use of DEMs between bilingual and monolingual samples (as a whole and within age groups) as bilingual children do not use significantly more DEMs than monolingual children in either age group or in the whole sample (based on the Fisher test, p = 1 for the whole samples; p = 1, p = 0.68, and p = 0.61 for 4-, 5-, and 6-year-olds respectively).

Thus, the results indicate similar performance in the use of DEMs in both samples, contrary to the initial assumption that bilingual children may use demonstrative pronouns *ėtot/ėta/ėto* more extensively in Russian, in analogy to the German demonstrative pronouns *der/die/das,* widely used in German child narrative discourse.



a. Whole samples b. Age groups

Figure 13. DEMs in Russian

Still, it is interesting to look at a couple of examples illustrating the occasional use of DEMs in both samples:

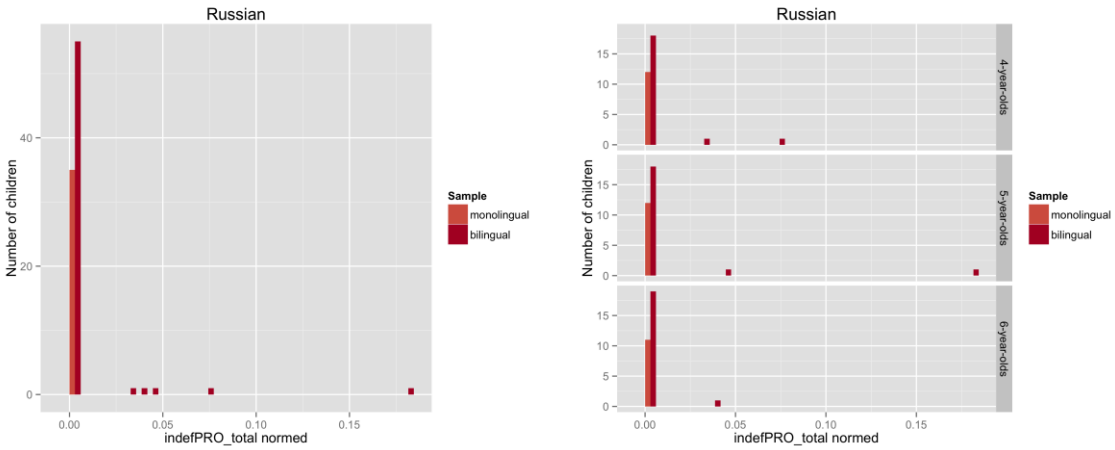
(55) *Kiska* *xochet* *zabrat'* *vot e~to.* (CAT, mr086, 4;1)
cat$_{F\text{-}SG:NOM}$ want$_{IPFV\text{-}PRS:3SG}$ take$_{INF\text{-}PFV}$ this$_{N\text{-}SG:ACC}$
(The) cat wants to take this.

(56) *U nego* *e~ta* *upala.* (FOX, br051, 5;10)
at him$_{M\text{-}3SG:GEN}$ this$_{F\text{-}SG:NOM}$ fall.down$_{PFV\text{-}PST:SG:F}$
He dropped this.

(57) *I* *teper'* *on* *e~to* *xochet.* (FOX, br051, 5;10)
and now he$_{M\text{-}3SG:NOM}$ this$_{N\text{-}SG:ACC}$ want$_{IPFV\text{-}PRS:3SG}$
And now he wants this.

IndefPROs

IndefPRO is a referential expression that is atypical for the analyzed type of discourse. Indeed, only very few occurrences (1%) have been found in the data: only 5 (out of 60) bilingual children use indefPROs and no monolinguals, as can be seen in Figures 14a and 14b. The proportion of bilingual children using indefPROs does not differ statistically from that of monolinguals in any of the age groups (based on the results of the Fisher test performed for the whole samples and for each age group).



a. Whole samples b. Age groups

Figure 14. IndefPROs in Russian

Several examples demonstrate the rare use of indefPROs:

(58) *On potom odnu ukusil.* (CAT, br054, 5;11)
he$_{M\text{-}3SG:NOM}$ then one$_{F\text{-}SG:ACC}$ bite$_{PFV\text{-}PST:SG:M}$
Then he bit one.

(59) *Potom lis xotel zabrat' u nee chego(-to).* (FOX, br024, 5;9)
then he-fox$_{M\text{-}SG:NOM}$ want$_{IPFV\text{-}PST:SG:M}$ take$_{INF\text{-}PFV}$ from she$_{F\text{-}3SG:GEN}$ smth
Then he-fox[73] *wanted to take something from her.*

(60) *U ptichki &che odno upalo.* (FOX, br024, 5;9)
at bird$_{F\text{-}SG:GEN}$ one$_{N\text{-}SG:NOM}$ fall.down$_{PFV\text{-}PST:SG:N}$
The bird dropped one.

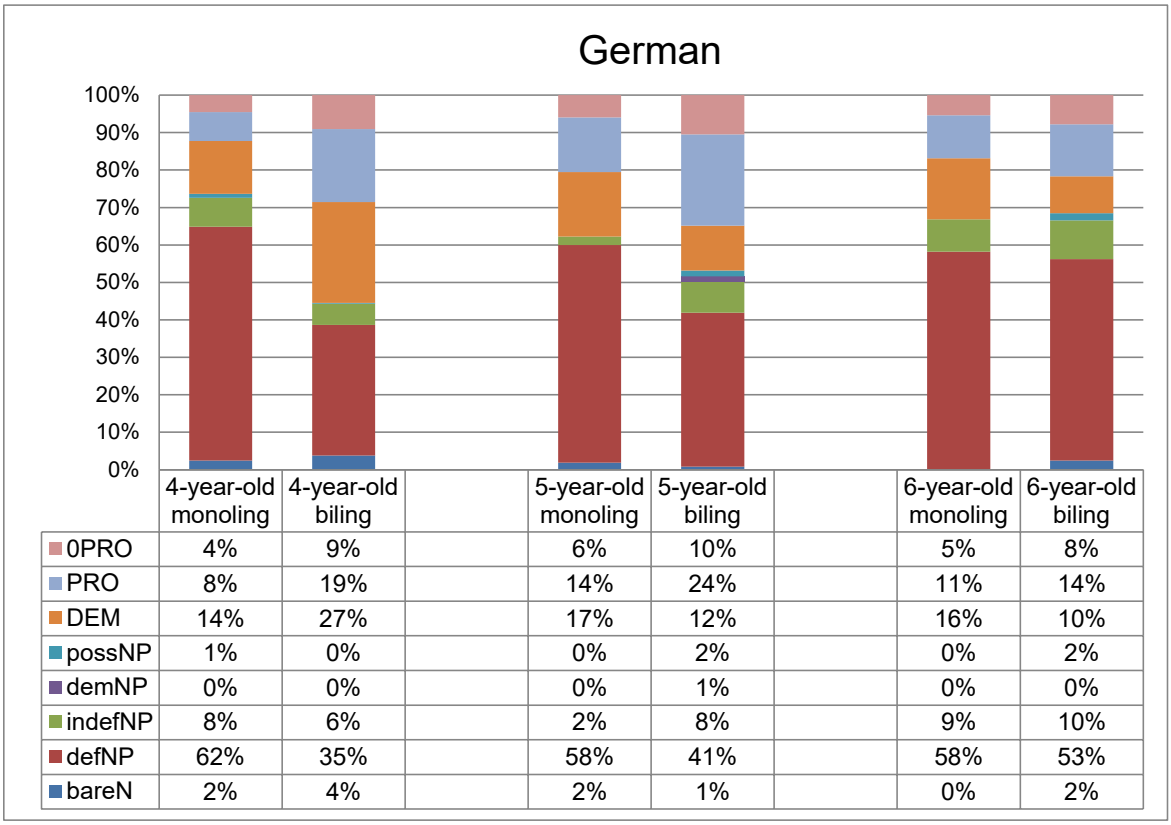
7.1.2 German

Figure 15 demonstrates the overall distribution of referential expressions in German in bilingual and monolingual samples per age group. It can be observed straight away that the age factor plays an important role in both bilingual and monolingual children in the given age range. However, similarly to Russian, it does not concern all types of referential expressions. There are considerable differences between monolingual and bilingual samples within and across age groups.

For example, monolingual children use considerably more defNPs than bilingual children at age 4 and 5 (62% vs. 35% and 58% vs. 41% respectively), whereas at age 6 there is almost no difference. At the same time, bilingual children use more DEMs at age 4 compared to monolingual children (27% vs. 14%) but much fewer DEMs at age 5 and 6 (12% vs. 17%

[73] In stories or fairy-tales in Russian the *fox* is prototypically feminine - *lisa*, but the masculine form *lis* can also be used. If a child uses the masculine form, it is marked in English as *he-fox*. The feminine form is unmarked.

and 10% vs. 16% in bilinguals and monolinguals respectively). With regard to PROs, bilingual children use this type of referential expression to a larger degree than monolinguals in all age groups (19%, 24%, and 14% in 4-, 5-, and 6-year-old bilinguals vs. 8%, 14%, and 11% in monolinguals in the respective age groups). The same applies to the use of 0PROs: bilingual children use this type of referential expression more extensively than monolingual ones (9%, 10%, and 8% in 4-, 5-, and 6-year-old bilinguals vs. 4%, 6%, and 5% in monolinguals in the respective age groups).



	4-year-old monoling	4-year-old biling		5-year-old monoling	5-year-old biling		6-year-old monoling	6-year-old biling
0PRO	4%	9%		6%	10%		5%	8%
PRO	8%	19%		14%	24%		11%	14%
DEM	14%	27%		17%	12%		16%	10%
possNP	1%	0%		0%	2%		0%	2%
demNP	0%	0%		0%	1%		0%	0%
indefNP	8%	6%		2%	8%		9%	10%
defNP	62%	35%		58%	41%		58%	53%
bareN	2%	4%		2%	1%		0%	2%

Figure 15. Types of referential expressions in German in monolingual and bilingual children: distribution by sample and age group (in %)

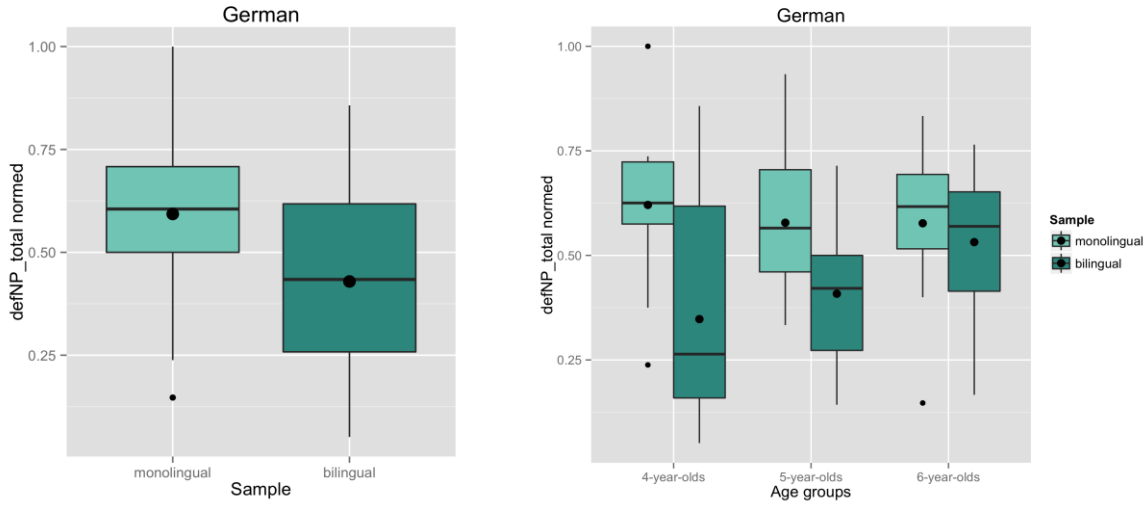
The differences and similarities are presented in more detail below, first for nominal reference, then for pronominal. The distribution of referential expressions is always presented in the whole samples and per age group in the form of box plots or bar plots, which account for the data distribution within each analyzed group. In case there are only a few children using one of the referential expressions under analysis, the data size therefore being very small, the data are presented in the form of bar plots, displaying the number of children and the number of referential expressions used by these children.

7.1.2.1 Nominal reference

DefNPs

The most dominant type of referential expression in German is clearly defNP, amounting to 59% in the monolingual and 43% in the bilingual sample. It ranges from 58% to 62% in monolinguals and 35% to 53% in bilinguals in different age groups (see Figures 16a and 16b).

In the comparison of the whole samples, one can see a clear difference between them. This difference is significant with a very high degree of confidence (Welch t-test, t (74,033) = 3.89, p < 0.001***). With regard to the use of defNPs within each age group, it can be seen that the difference is striking: 4-year-old monolinguals use twice as many defNPs as bilinguals (62% vs. 35%) of the same age, which is significant with a high degree of confidence (Welch t-test, t (28.253) = 3.43, p = 0.002**). The difference in 5-year-olds is smaller (58% vs. 41% respectively) but is also significant (Welch t-test, t (19.487) = 2.55, p = 0.019*), whereas the difference in 6-year-olds (58% vs. 53%) is not significant (Welch t-test, t (15.607) = 0.63, p = 0.54).



***The large dot inside each box represents the mean value of a group.**

a. Whole samples b. Age groups

Figure 16. DefNPs in German

The developmental patterns across age groups seem to be different: whereas in monolinguals the use of defNPs slightly decreases (62% at age 4, 58% at age 5 and 6), in bilinguals the use of defNPs continuously increases with age (35% at age 4, 41% at age 5, and 53% at age 6), with the performance becoming similar at age 6 in both samples. The difference across age groups is not significant in the monolingual sample (one-way ANOVA, F (2, 30) = 0.20, p = 0.82) but is significant in the bilingual sample (one-way ANOVA,

F (2, 57) = 4.39, p = 0.017*). The post-hoc tests confirm the significant difference between 4- and 6-year-old bilinguals (multcomp tests, p = 0.014* for the comparison of 4- and 6-year-olds, p = 0.61 for 4- and 5-year-olds, and p = 0.13 for 5- and 6-year-olds). The analysis of interaction between samples and age groups does not however indicate a significant difference (two-way ANOVA, F (2, 87) = 2.38, p = 0.10). Thus, it cannot be claimed that the developmental patterns in bilinguals and monolinguals are significantly different.

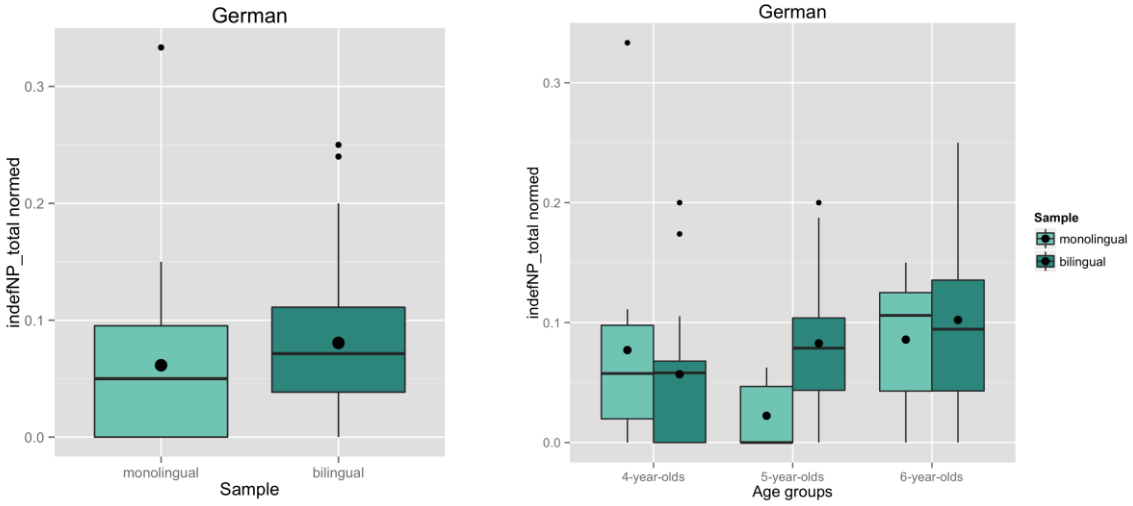
The typical use of defNPs in both samples is demonstrated in the following examples:

(61) *Der Fuchs hat den Fisch*
the$_{DEF\text{-}M\text{-}SG:NOM}$ fox$_{M\text{-}SG:NOM}$ have$_{PRS:3SG}$ the$_{DEF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$
und der Adler ist weg. (FOX, md147; 4;4)
and the$_{DEF\text{-}M\text{-}SG:NOM}$ eagle$_{M\text{-}SG:NOM}$ be$_{PRS:3SG}$ away
The fox has the fish and the eagle is away.

(62) *Der Hund hat jetzt die Katze.* (CAT, bd023, 5;6)
the$_{DEF\text{-}M\text{-}SG:NOM}$ dog$_{M\text{-}SG:NOM}$ have$_{PRS:3SG}$ now the$_{DEF\text{-}F\text{-}SG:ACC}$ cat$_{F\text{-}SG:ACC}$
The dog has the cat now.

IndefNPs

As can be seen in Figures 17a and 17b below, the number of indefNPs is rather moderate in both samples (6% in the monolingual and 8% in the bilingual one) as well as in all age groups, ranging between 2% and 9% in monolinguals and between 6% and 10% in bilinguals.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 17. IndefNPs in German

The smaller number of indefNPs (in comparison to the number of defNPs) is not surprising: it clearly lies in the nature of the analyzed discourse type, given that indefNPs

should be used only for the introduction of new referents in narratives whereas defNPs can be used throughout the story. Statistically, there is no significant difference in the overall use of indefNPs between the samples (Wilcoxon test, W = 794, p = 0.11).

At the same time, comparing the use of indefNPs within each age group, one can observe that bilingual children use fewer indefNPs than monolingual children at age 4 (6% vs. 8% in bilinguals and monolinguals respectively), more at age 5 (8% vs. 2%), and nearly the same number at age 6 (10% vs. 9%). However, the difference turns out to be significant only in the group of 5-year-olds (Wilcoxon test, W = 40, p = 0.004** for 5-year-olds; W = 132.5, p = 0.64 for 4-year-olds, and Welch t-test, t (22.316) = -0.68, p = 0.50 for 6-year-olds).

With regard to the use of indefNPs across age groups, no distinct developmental pattern appears in either sample. The monolingual children suddenly decrease the use of indefNPs at age 5 and come back to the same level of production at age 6 as they showed at age 4. Indeed, the statistical analysis shows a significant difference across age groups (Kruskal-Wallis test, x^2 (2) = 7.42, p = 0.025*). The post-hoc tests (pairwise Wilcoxon tests) show a significant difference only between 5- and 6-year-old monolingual children (p = 0.045*) and not between 4- and 5-year-olds (p = 0.091) or 4- and 6-year-olds (p = 0.303). In bilingual children, who gradually increase the use of indefNPs between the age of 4 and 5, the comparison across age groups shows no significant difference (Kruskal-Wallis test, x^2 (2) = 5.49, p = 0.064).

From the developmental point of view, the use of indefNPs can be interpreted in the following way: 4-year-old bilingual children already use a similar number of indefNPs compared to 5- and 6-year-old children, who use an almost equal number of indefNPs. Whether the developmental patterns are significantly different in the comparison of the bilingual and monolingual samples, could not be confirmed statistically, as a proper two-factorial analysis of variance could not be performed due to the non-normal data distribution. Still, given partly significant differences within and across age groups, the development over age with regard to the use of indefNPs in German in the bilingual and monolingual samples is more different than similar.

The monolingual and bilingual use of indefNPs is demonstrated in the following examples:

(63) *Ein* *Vogel.* (FOX, md119, 4;1)
a$_{\text{INDF-M-SG:NOM}}$ bird$_{\text{M-SG:NOM}}$
A bird.
ein vogel|T-indefNP-S-NOM-Mn-0V-New-FM-Ref=bird1

(64) *Da is(t)* *ein* *Fi:s(ch).* (FOX, bd064, 4;2)
there be$_{\text{PRS:3SG}}$ a$_{\text{INDF-M-SG:NOM}}$ fish$_{\text{M-SG:NOM}}$
A fish is there.
ein Fisch|T-indefNP-S-NOM-Mn-PostV:MF-New-FM-Ref=fish

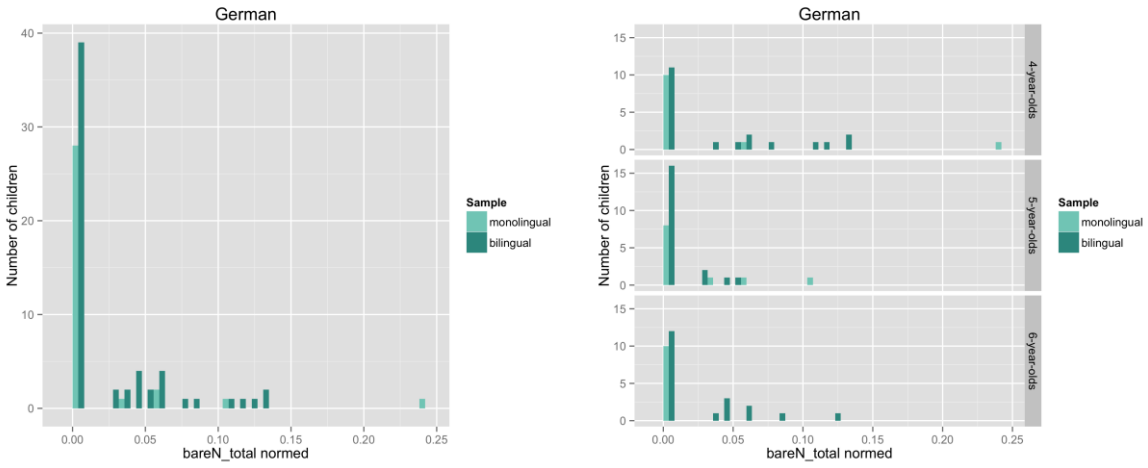
(65) *Da* *kommt* *ein* *Rabe.* (FOX, md063, 6;2)
there come$_{\text{PRS:3SG}}$ a$_{\text{INDF-M-SG:NOM}}$ raven$_{\text{M-SG:NOM}}$
There, a raven is coming.

(66) *Und* *da* *kam* *(ei)ne* *Katze.* (CAT, bd004, 5;10)
And there come$_{PST:3SG}$ a$_{INDF-F-SG:NOM}$ cat$_{F-SG:NOM}$
And there, a cat came.

In the presented examples, it can be observed that the structure of clauses containing indefNPs is rather simple from the syntactic point of view at age 4, as in (63) and (64), and becomes more elaborated with age, as in (65) and (66), in both monolingual and bilingual children. The question of whether the use of indefNPs concerns only the introduction of new referents into narration is covered by the analysis in section 7.2.2.

BareNs

Related to the hypothesis about crosslinguistic interactions, bareN was assumed to be a type of referential expression for potential crosslinguistic interference. Russian-German bilingual children were expected to occasionally use bareNs in German. In fact, it was found that bilingual children (n=21 out of 60) use a small number of bareNs in German, namely 2% of all referential expressions. Monolingual children (n=5 out of 33) also use bareNs to the same degree – 2% (see Figure 18a). As there are only a few children using bareNs overall, only the proportions of these children have been compared statistically. The difference between the bilingual and monolingual children in the use of bareNs is not significant (Fisher test, p = 0.054).



a. Whole samples b. Age groups

Figure 18. BareNs in German

Although the use of bareNs is rather restricted, it is not limited to a single age group (see Figure 18b), especially in the bilingual sample: the youngest bilingual children use 4% and monolingual ones use 2%; 5-year-old bilinguals use only 1% and monolinguals 2% of bareNs, 6-year-old bilinguals use 2% of bareNs and monolinguals 0%. In the comparison of the proportions of children using bareNs within each age group, no significant difference

could be found for 4- and 5-year-olds (Fisher test, p = 0.14 and p = 0.68 respectively), but a significant difference could be found for 6-year-olds (Fisher test, p = 0.029*). Thus, the marginal use of bareNs in German is rather similar in both samples, with the exception of the 6-year-olds.

The examples (67)-(69) show in which contexts bilingual and monolingual children occasionally use bareNs:

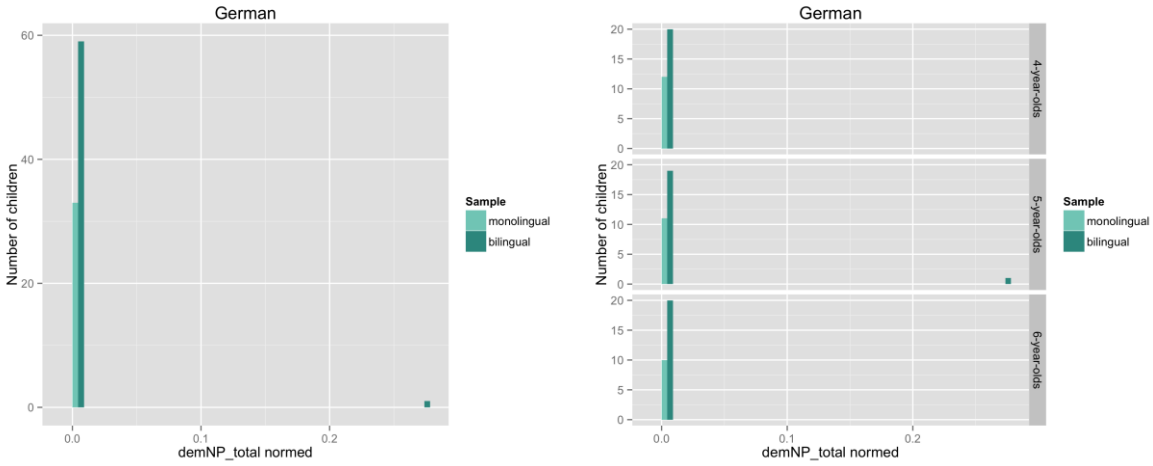
(67) *Und 0word-d Adler will nicht runter.* (FOX, mb127, 5;3)
and eagle$_{M:SG:NOM}$ want$_{PRS:3SG}$ not down
And (the) eagle does not want (to fly / to go) down.

(68) *Und 0word-d Wolf hat ihn # nicht.* (FOX, bd072, 4;05)
And wolf$_{M-SG:NOM}$ have$_{PRS:3SG}$ he$_{M-SG:ACC}$ not.
And (the) wolf doesn't have him.

(69) *Der Rabe hat von 0word-d Fuchs*
the$_{DEF-M:SG:NOM}$ raven$_{M:SG:NOM}$ have$_{AUX-PRS:3SG}$ from fox$_{M:SG:DAT}$
sich 0word-o geschnappt . (FOX, bd052; 6;0)
for.himself snap$_{PTCP-PST}$
The raven snapped (it) from (the) fox.

DemNPs

With regard to the use of demNPs, presented in Figures 19a and 19b, only one 5-year-old bilingual child uses them in German. This stands in contrast to Russian, where the use of demNPs is higher and is present in all age groups. None of the monolingual children uses this type of referential expression in German in the analyzed sample. Given these facts, no statistical analysis was performed.



a. Whole samples b. Age groups

Figure 19. DemNPs in German

It should be mentioned that the child who uses demNPs in German does not exclusively use this type of nominal reference but also uses defNPs. However, the number of demNPs is considerable. Two examples demonstrate the use of demNPs in his narrative:

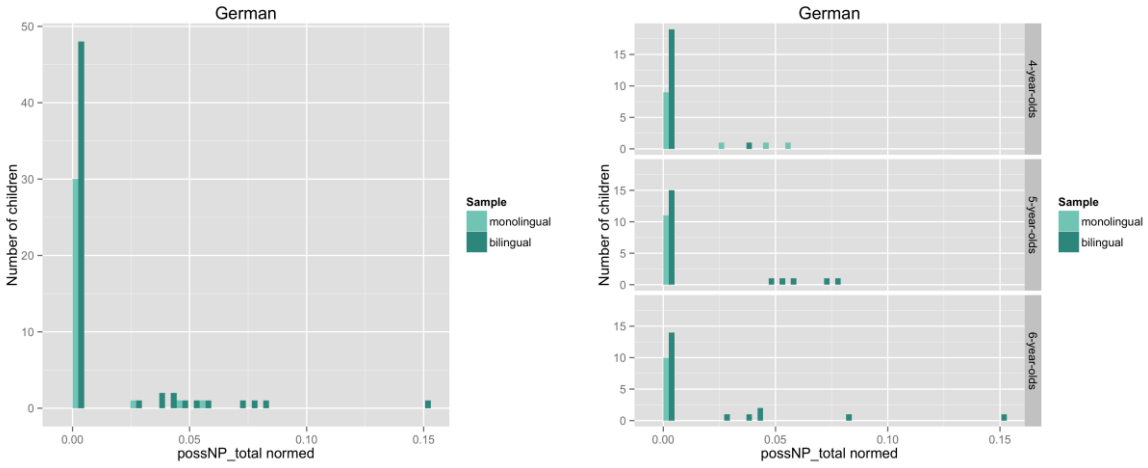
(70) *Und dann kommt diese busse [*] [: boese] [?] Katze.* (CAT, bd024, 5;9)
and then come$_{PRS:3SG}$ this$_{F-SG:NOM}$ bad cat$_{F-SG:NOM}$
And then this bad cat comes.

(71) *Dann ist dieses [*] [: dieser] Vogel weggeflogen.* (CAT, bd024, 5;9)
then be$_{AUX-PRS:3SG}$ this$_{N-SG:NOM}$ bird$_{M-SG:NOM}$ fly.away$_{PTCT-PST}$
Then this bird flew away.

PossNPs

As for the possNPs, its use is, similarly to Russian, very restricted in both samples: 1% in bilinguals and 0% in monolinguals (more precisely 0,4% as there are still several occurrences) (see Figure 20a). Looking at the age groups (see Figure 20b), one can see that only 4-year-old monolingual children (n=3) use it at all, whereas bilingual children use it in all age groups, though to a minimal degree: 0,2% in 4-year-olds (n=1) and equally 2% in 5-year-olds (n=5) and in 6-year-olds (n=6).

Thus, although bilingual children use more possNPs than monolingual children, the overall low numbers confirm that, also in German, this referential expression is generally very rare in the analyzed type of discourse. Based on the results of the Fisher test, there is no statistical difference between monolingual and bilingual children, either in the whole samples or in the age groups (Fisher test, p = 0.24 for the whole samples, p = 0.14, p = 0.14, and p = 0.07 for 4-, 5-, and 6-year-olds respectively).



a. Whole samples b. Age groups

Figure 20. PossNPs in German

The occasional use of possNPs in both samples is demonstrated below:

(72) *Da gibt die Mama ihren*
there give$_{PRS:3SG}$ the$_{DEF-F-SG:NOM}$ mom$_{F-SG:NOM}$ her$_{F-PL:DAT}$
Kinderkueken noch ein Wuermchen. (CAT, md021, 4;6)
baby-chick$_{N-PL:DAT}$ more a$_{INDF-M-SG:ACC}$ worm$_{M-SG:ACC}$
Then the mother gives one more worm to her baby-chicks.

(73) *Aber [2x] hier ist ein Entchen*
but here be$_{PRS:3SG}$ a$_{INDF-N-SG:NOM}$ duck$_{N-SG:NOM}$
mit seinen kleinen Kueken. (CAT, bd023, 5;6)
with its$_{N-PL:DAT}$ little chick$_{N-PL:DAT}$
But here is a duck with its little chicks.

7.1.2.2 Pronominal reference

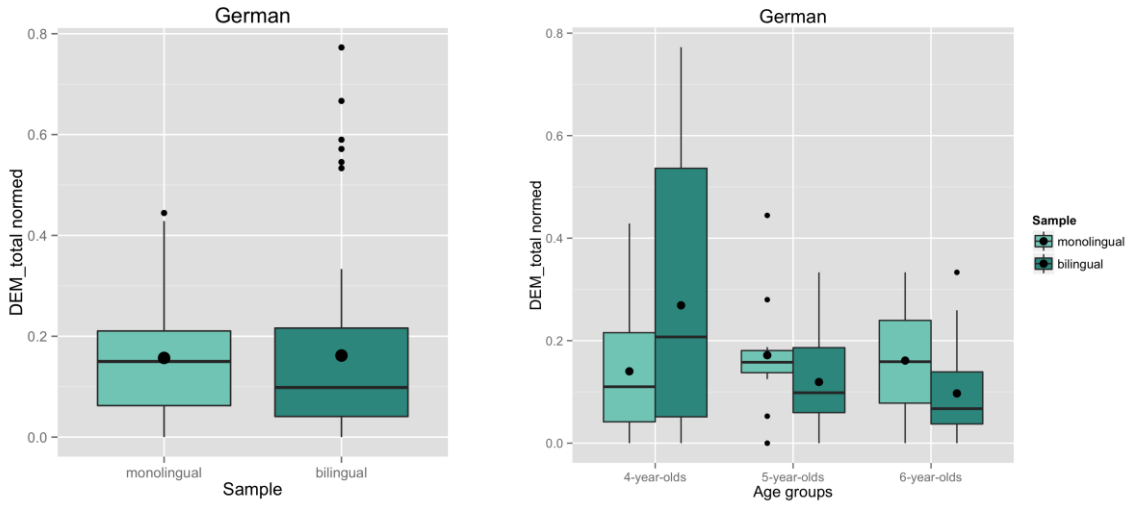
With regard to pronominal reference, all three expected types of referential expressions, DEM, PRO, and 0PRO, are present in both samples, whereas DEM is the most frequent pronominal type in the monolingual sample and PRO in the bilingual sample. Furthermore, in comparison to Russian, the distribution and developmental patterns are rather different in bilingual and monolingual samples in German. A detailed analysis is presented below.

DEMs

With regard to the use of DEMs in the whole samples, they are used by both bilingual and monolingual children, 16% out of all referential expressions in each sample, with some differences in the data variation (see Figure 21a). The difference between monolingual and bilingual use of DEMs is clearly not significant (Welch t-test, t (87.797) = -0.15, p = 0.88). In the comparison of the monolingual and bilingual use of DEMs within each age group (see Figure 22b), a very different distribution can be observed, first and foremost at age 4: 27% in bilinguals vs. 14% in monolinguals. However, the difference is not significant (Welch t-test, t (29.816) = -1.896, p = 0.068), most probably due to a rather big data variation in the bilingual sample. At age 5 and 6, the difference becomes smaller: 17% and 16% in monolinguals vs. 12% and 10% in bilinguals respectively, whereas this time bilingual children use fewer DEMs than monolingual children of the same age. Statistically though, the difference is not significant for either age group (Welch t-test, t (17.224) = 1.29, p = 0.21 for 5-year-olds and t (16.362) = 1.61, p = 0.13 for 6-year-olds).

With regard to the developmental patterns in the use of DEMs, the opposite pattern can be observed in bilingual and monolingual samples. In bilinguals, there is a remarkable decrease, from 27% at age 4 to 12% and 10% at age 5 and 6 respectively. The analysis of variance shows a significant difference across age groups (one-way ANOVA, F (2, 57) = 6.60, p = 0.003**) and post-hoc tests confirm a significant difference for the comparisons between 4- and 5-year-olds as well as between 4- and 6-year-olds (multcomp tests, p = 0.014* and p = 0.004** respectively), whereas the difference between 5- and 6-year-olds is not significant (p = 0.90). Contrary to bilinguals, the use of DEMs in monolinguals

increases from 14% at age 4 to 17% and 16% at age 5 and 6. The difference across age groups is not significant this time (one-way ANOVA, F (2, 30) = 0.20, p = 0.82). The analysis of interaction between the samples and age groups shows a significant difference (two-way ANOVA, F (2, 87) = 3.80, p = 0.026*), confirming different developmental patterns in each sample.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 21. DEMs in German

The following examples demonstrate the typical use of DEMs in the bilingual and monolingual samples:

(74) *Da piekt der den rein*
there pick$_{PRS:3SG}$ he$_{DEM-M:SG:NOM}$ he$_{DEM-M:SG:ACC}$ inside
und dann hat der den Fisch. (FOX, md119; 4;1)
and then have$_{PRS:3SG}$ he$_{DEM-M:SG:NOM}$ the$_{DEF-M-SG:ACC}$ fish$_{M-SG:ACC}$
There he is picking at him and then he has the fish.

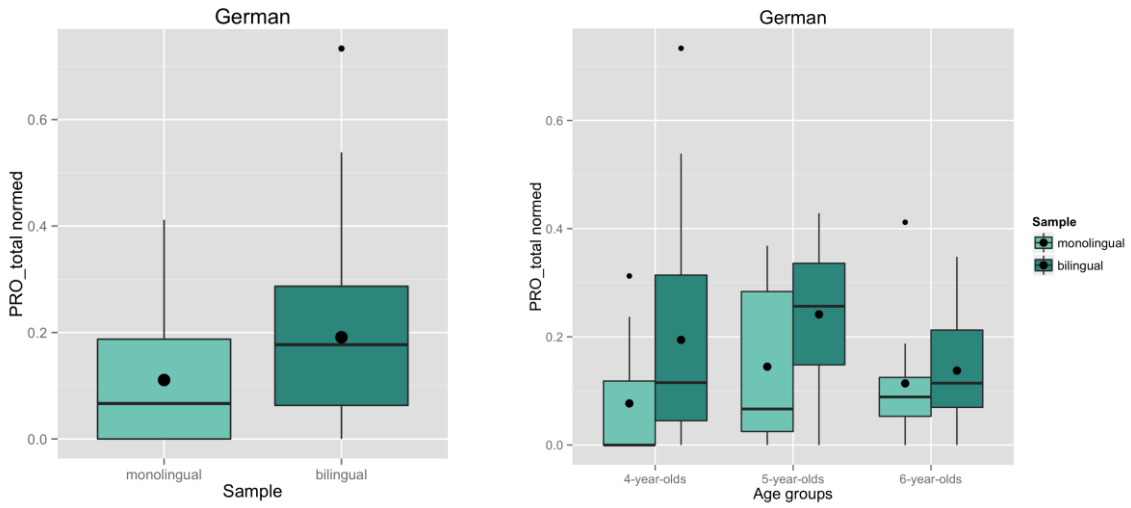
(75) *Hier springt der hoch.* (FOX, md168_new, 6;0)
here jump$_{PRS:3SG}$ he$_{DEM-M:SG:NOM}$ high
Here he is jumping high.

(76) *Aber der hab [*] [: hat] es nur geklaut.* (FOX, bd091, 4;1)
but he$_{DEM-M:SG:NOM}$ have$_{AUX-PRS:3SG}$ it$_{N:SG:ACC}$ only steal$_{PTCP-PST}$
But he only stole it.

PROs

In the comparison of the whole samples, bilingual children use PROs to a higher degree than monolingual children (19% vs. 11%), which is consistent with the general expectations (see Figure 22a). Given that the data are not normally distributed, a Wilcoxon test has been used for the comparison of the samples, confirming a significant difference (W = 671.5, p = 0.01*). With regard to the use of PROs in the age groups (see Figure 22b), the difference remains more or less constant throughout age: 19% vs. 8% in 4-year-olds, 24% vs. 14% in 5-year-olds, and 14% vs. 11% in 6-year-olds (bilinguals and monolinguals respectively). However, the difference is not significant in either age group (Wilcoxon test, W = 73.5, p = 0.068 in 4-year-olds; Welch t-test, t (17.352) = -1.81, p = 0.087 in 5-year-olds and t (16.153) = -0.53, p = 0.60 in 6-year-olds).

With regard to the developmental patterns in the use of PROs, a rather stable production can be observed in bilinguals across all age groups, starting with 19% at age 4, slightly increasing to 24% at age 5 and decreasing to 14% again at age 6, whereas in monolinguals a certain increase in the use of PROs can be observed after the age 4, starting with 8% at age 4 and reaching 14% at age 5 and 11% at age 6. In the analysis of variance across age groups in each sample, the difference turns out to be not significant in either sample (one-way ANOVA, F (2, 57) = 2.35, p = 0.10 for the bilingual sample and Kruskal-Wallis test, x^2 (2) = 2.03, p = 0.36 for the monolingual sample).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 22. PROs in German

At the same time, although bilingual children use a higher proportion of PROs across all age groups compared to monolingual children, the developmental pattern seems to be rather similar in both samples: a slight increase between age 4 and 5 and a slight decrease

between age 5 and 6. This could not be confirmed statistically though, as the analysis of the interaction between samples and age groups was not performed due to the non-normal data distribution. Nonetheless, given that all comparisons within and across age groups did not reveal significant differences, the results indicate similar performance and development over age for both samples.

The typical use of PROs is demonstrated in the following examples:

(77) *Und dann will der Fuchs ihn beissen.* (FOX, md093, 4;7)
and then want$_{PRS:3SG}$ the$_{DEF-M-SG:NOM}$ fox$_{M-SG:NOM}$ he$_{M-3SG:ACC}$ bite$_{INF}$
And then the fox wants to bite him.

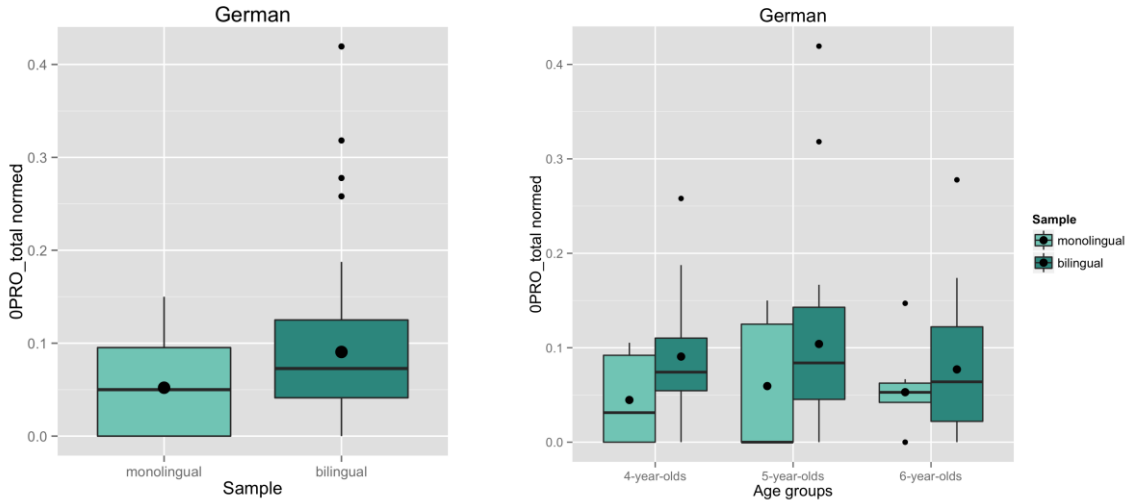
(78) *Und dann hat er den Fisch*
and then have$_{AUX-PRS:3SG}$ he$_{M-3SG:NOM}$ the$_{DEF-M-SG:ACC}$ fish$_{M-SG:ACC}$
&gefre geesst [*] [: gegessen] +/. (FOX, bd054, 5;8)
eat$_{PTCP-PST}$
And then he ate the fish.

0PROs

With regard to the use of 0PROs, it has been assumed that bilingual children could use more 0PROs in German than monolingual children, given that in Russian 0PROs can be used in more contexts and that bilingual children might extend the use of 0PROs to more contexts in German as well. At the same time, according to the respective hypothesis, the difference between bilingual and monolingual performance was not expected to be significant. In fact, the overall use of 0PROs in the whole samples is indeed different: 5% in monolinguals vs. 9% in bilinguals (see Figure 23a). This difference turns out to be significant (Wilcoxon test, W = 718, p = 0.028*).

In the comparison of bilingual and monolingual performance within each age group (see Figure 23b), one can see that bilingual children use slightly more 0PROs than monolingual children in all age groups: 9% vs. 4% in 4-year-olds, 10% vs. 6% in 5-year-olds, and 8% vs. 5% in 6-year-olds (bilinguals and monolinguals respectively). However, statistically, the difference between the bilingual and monolingual use of 0PROs is not significant in either age group based on the results of the Wilcoxon test (W = 79, p = 0.11 in 4-year-olds; W = 85, p = 0.30 in 5-year-olds; and W = 86, p = 0.55 in 6-year-olds).

Thus, although in the comparison of the whole samples bilingual children use significantly more 0PROs than monolingual children, the comparison per age group does not display the same result, probably due to the distribution of data within each age group and sample. In addition, it can be pointed out that the data in the monolingual sample are not normally distributed (there are many 4- and 5-year-old children who do not use 0PROs in German at all), whereas the data in the bilingual sample have a good approximation to the normal distribution in all age groups. This suggests that bilingual children regularly use this referential expression from early on.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 23. 0PROs in German

With regard to the development in the use of 0PROs across age groups, no clear developmental pattern can be observed in either sample. The use of 0PROs slightly increases in bilinguals at age 5 and decreases again at age 6 (9% in 4-year-olds, 10% in 5-year-olds, and 8% in 6-year-olds), whereas in monolinguals it remains more or less stable through all age groups (4% in 4-year-olds, 6% in 5-year-olds, and 5% in 6-year-olds). What is especially interesting here is the distribution of the data in the monolingual sample: whereas at age 4 and 5 approximately half of the children do not use 0PROs at all, at age 6 almost all children (except for two outliers) use it with a very small variation. No significant difference across age groups was found for either sample (one-way ANOVA, $F(2, 57) = 0.52$, $p = 0.59$ in bilinguals and Kruskal-Wallis test, $x^2(2) = 0.27$, $p = 0.87$ in monolinguals). The analysis of variance for the interaction between samples and age groups was not performed due to the non-normal data distribution. Nonetheless, given that all comparisons within and across age groups did not reveal significant differences, the results indicate similar performance and development over age for both samples.

The examples below demonstrate in which contexts bilingual and monolingual children use 0PROs in German:

(79) *Dann kommt der Fuchs*
then come$_{PRS:3SG}$ the$_{DEF-M-SG:NOM}$ fox$_{M-SG:NOM}$
und will den Fisch. (FOX, md127, 5;3)
and want$_{PRS:3SG}$ the$_{DEF-M-SG:ACC}$ fish$_{M-SG:ACC}$
Then the fox comes and wants the fish.

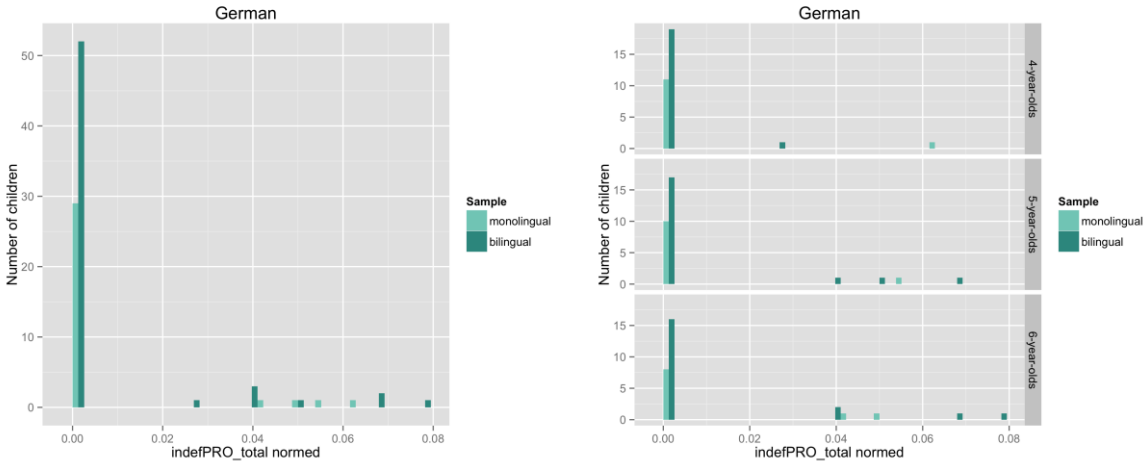
(80) *Dann ist dieses [*] [: dieser] Vogel weggeflogen*
Then be$_{AUX\text{-}PRS:3SG}$ this$_{N\text{-}SG:NOM}$ bird$_{M\text{-}SG:NOM}$ fly.away$_{PTCP\text{-}PST}$
und 0word-v seine Kinder vergessen. (CAT, bd024; 5;9)
and his$_{M\text{-}PL:ACC}$ child$_{N\text{-}PL:ACC}$ forget$_{PTCP\text{-}PST}$
Then this bird flew away and forgot its/his children.

(81) *0word-s will [2x] sie ein bisschen schnappen.* (FOX, bd040, 5;8)
want$_{PRS:3SG}$ she$_{F\text{-}3SG:NOM}$ a bit grab$_{INF}$
(He) wants to grab her a bit.

It should be noted that, generally, bilingual children rarely extend the use of 0PROs to contexts other than those typical for German (coordinate clauses with co-referential subjects), e.g., in subjectless independent main clauses with a clearly identifiable topic, which is acceptable in Russian. Thus, they remain within the target use of 0PROs in German, but they apparently do it more often than monolingual children.

IndefPROs

IndefPROs were produced very rarely, if at all (1% out of all referential expressions) in both samples (see Figures 24a and 24b), and mostly by 5-and 6-year-old children, monolinguals and bilinguals: one bilingual child from the 4-year-old age group (out of 20), 2 monolingual vs. 3 bilingual children from the 5-year-old age group (out of 11 and 20 respectively), and 2 vs. 4 from the 6-year-old age group (out of 10 and 20 respectively). Given the very low overall number of produced indefNPs, no further analysis was done. It can be assumed that the differences would not be significant.



a. Whole samples b. Age groups

Figure 24. IndefPROs in German

The following examples demonstrate the exceptional use of indefPROs in German:

(82) *Der [//] Die Mamavogel kommt wieder her,*
the$_{DEF\text{-}F\text{-}SG:NOM}$ mother-bird$_{F\text{-}SG:NOM}$ come$_{PRS:3SG}$ again here
0word-c bringt was zum Essen, Wuermer. (CAT, md163_new, 6;1)
bring$_{PRS:3SG}$ smth for.the$_{N\text{-}SG:DAT}$ food$_{N\text{-}SG:DAT}$ worm$_{M\text{-}PL:ACC}$
The mother-bird is coming here again, is bringing something to eat, worms.

(83) *Und dann hatte [//] hat die Mutter*
and then [had] have$_{AUX\text{-}PRS:3SG}$ the$_{DEF\text{-}F\text{-}SG:NOM}$ mother$_{F\text{-}SG:NOM}$
was zum Essen ihm [*] [: ihnen] gebracht. (CAT, bd036, 6;7)
smth for.the$_{N\text{-}SG:DAT}$ food$_{N\text{-}SG:DAT}$ he$_{M\text{-}3SG:DAT}$ bring$_{PTCP\text{-}PST}$
And then the mother brought something to eat for him.

7.1.3 Russian and German in crosslinguistic comparison

As already shown in the beginning of this chapter (see Figure 5), the distribution and types of referential expressions in the analyzed languages look rather different, especially in the crosslinguistic comparison of monolingual samples. This it to be expected due to differences in the referential systems of the respective languages. The direct comparison of each particular type of referential expression would not make much sense, precisely due to these differences. The crosslinguistic comparisons are therefore performed on a more general level, with regard to nominal and pronominal referential expressions taken as overall categories. Those types of referential expressions which have the same or similar function in both languages are compared as single types or in combinations, depending on the category.

The overall distribution of nominal and pronominal types of referential expressions is investigated for the whole samples as well as within and across age groups. Bilingual and monolingual samples are compared separately in order to trace language-specific or crosslinguistic patterns. Special attention is given to the developmental patterns and changes in the use of certain types of referential expressions, which are predicted to occur at the same time in both languages. This could speak for age-specific developmental patterns as well as language-specific performance, regarding the use of reference in the narrative discourse.

7.1.3.1 Nominal reference

Figure 25 presents the distribution of all nominal types of referential expressions found in the data in monolingual and bilingual samples. It is important to remember that in Russian it is impossible to determine whether a bareN is definite or indefinite merely on the basis of the linguistic form. Thus, at this stage of the analysis, Russian bareNs can be compared only to German indefNPs and defNPs taken together.

In addition, since Russian-German bilinguals produce single occurrences of indefNPs and a considerable number of demNPs in Russian and single occurrences of bareNs in German, these are all taken into consideration. PossNP is probably the only nominal type of referential expression that can be compared directly. However, as it is present in both languages to a very low degree, it is not compared separately but instead added to the other nominal expressions compared in combination. Thus, the overall number of all nominal referential expressions in Russian is compared to the overall number of all nominal referential expressions in German. Given this way of comparison, no additional figures are presented for the distribution of different nominal types of referential expressions per age group.

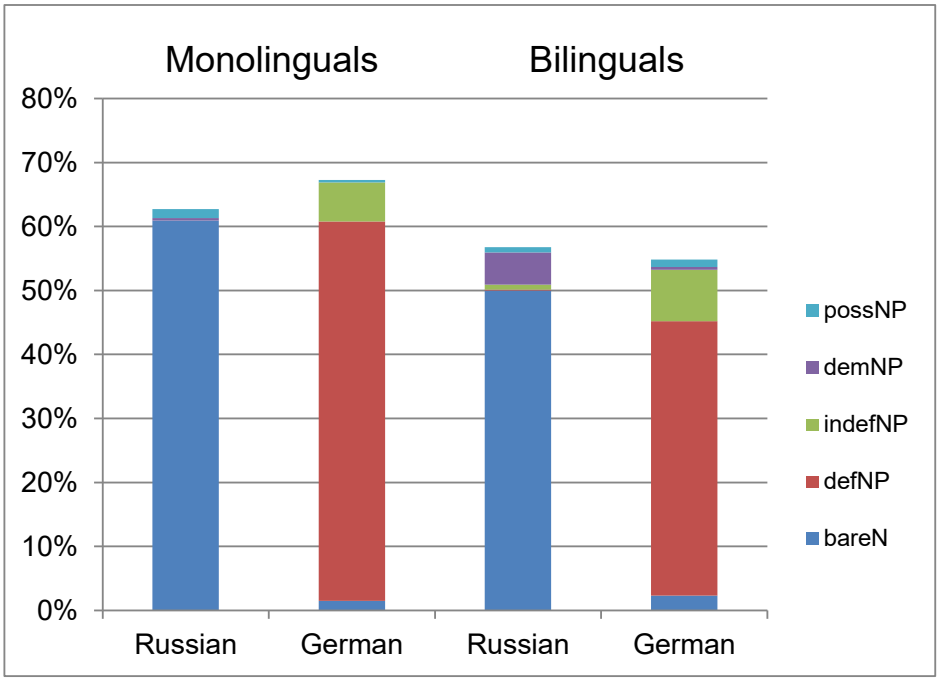
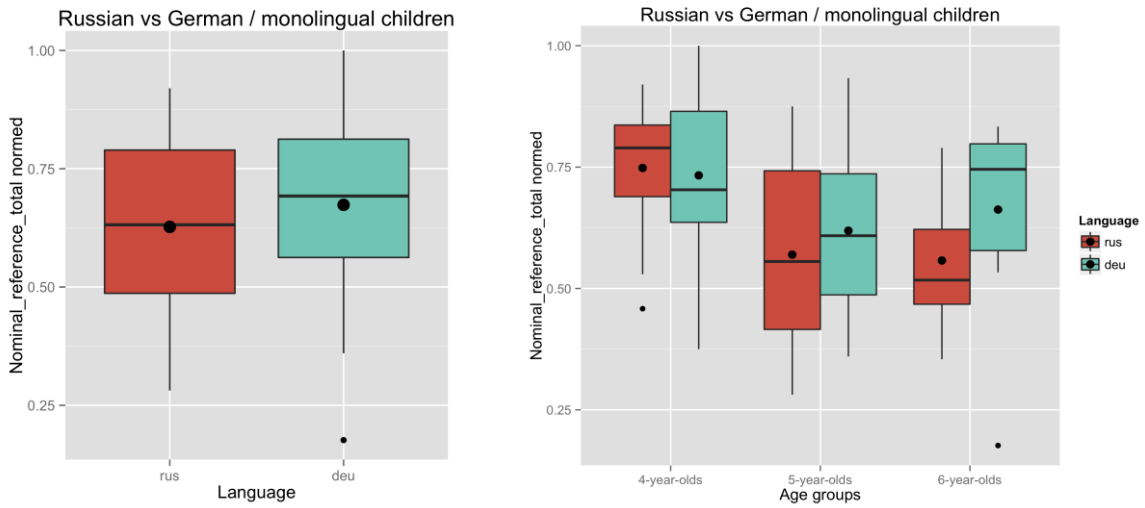


Figure 25. Types of nominal expressions in Russian vs. German in monolingual and bilingual children: distribution by sample and language (in %)

In the crosslinguistic comparison of the monolingual samples taken as a whole (see Figure 26a), it can be seen that German monolinguals use slightly more nominal referential expressions than Russian monolinguals (67% in German vs. 63% in Russian). This difference, however, is not significant (Welch t-test, $t(65.712) = -1.02$, $p = 0.31$). At the same time, in comparison of the monolingual performance within each age group (see Figure 26b), the distribution seems to be rather different, at least with regard to the variation in the data. However, the difference is significant in neither age group (Welch t-test, $t(21.097) = 0.22$, $p = 0.82$ for 4-year-olds; $t(20.901) = -0.60$, $p = 0.55$ for 5-year-olds; and $t(15.645) = -1.38$, $p = 0.19$ for 6-year-olds). Thus, in each age group, monolingual children show similar performance in Russian and German with regard to nominal reference.

From the developmental point of view, the comparison reveals certain differences: the analysis of variance across age groups shows a significant difference only in Russian (one-way ANOVA, $F(2, 32) = 4.64$, $p = 0.017^*$ for Russian and $F(2, 30) = 1.07$, $p = 0.35$ for

German). The post-hoc tests confirm a significant difference between 4- and 5-year-old and 4- and 6-year-old monolinguals in Russian (multcomp tests, p = 0.039* and p = 0.03* respectively). At the same time, the developmental patterns seem to be rather similar in Russian and German: a simultaneous decrease in the use of nominal reference between age 4 and 5 and a relative stability at comparable levels at age 5 and 6. Indeed, the analysis of interaction between samples and languages shows no significant difference (two-way ANOVA, F (2, 62) = 0.63, p = 0.53).



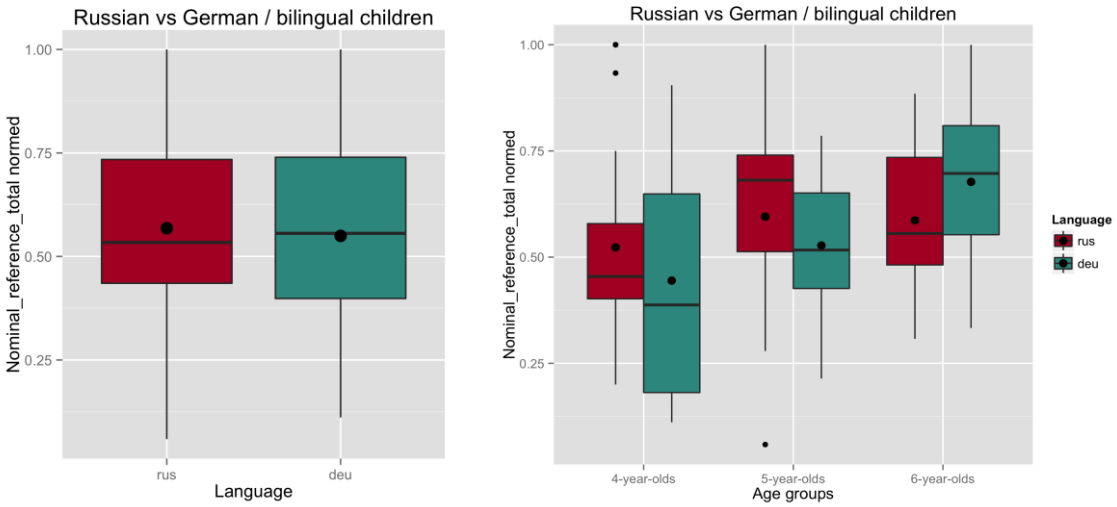
*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 26. Nominal reference in Russian vs. German in monolinguals

In the bilingual samples, the situation is rather similar compared to that of the monolingual samples (see Figure 27a): on the whole, bilingual children use almost the same number of nominal referential expressions in both languages, 57% in Russian vs. 55% in German, out of all produced referential expressions, the difference being insignificant (paired t-test, t (59) = 0.57, p = 0.57).

Comparing the children's performance in different age groups (see Figure 27b), one can see that, although the variation in the data in Russian and German is often different, especially in 4-year-olds, the difference between the languages is insignificant in each age group (paired t-tests, t (19) = 1.33, p = 0.20 in 4-year-olds, t (19) = 1.24, p = 0.23 in 5-year-olds and t (19) = -1.77, p = 0.09 in 6-year-olds). Thus, the results indicate that bilingual children show similar performance in both languages.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 27. Nominal reference in Russian vs. German in bilinguals

However, with regard to the developmental patterns in bilingual children, they seem to be different in Russian and German: although bilingual children have almost no change in development between age 4 and 6 in Russian, they continuously increase the use of nominal expressions with age in German. The analysis of variance shows a significant difference across age groups in German (one-way ANOVA, $F(2, 57) = 6.54$, $p = 0.003^{**}$ for German, $F(2, 57) = 0.75$, $p = 0.48$ for Russian). The post-hoc tests performed for the comparison of each pair of age groups confirm a significant difference between 4- and 6-year-olds (multcomp tests, $p = 0.002^{**}$), but not between 4- and 5-year-olds or 5- and 6-year-olds. In the analysis of interaction between samples and languages, the difference turns out to be significant (two-way ANOVA for repeated measures, $F(1, 58) = 4.70$, $p = 0.03^{*}$). These results indicate that in the bilingual sample the developmental patterns in the use of nominal reference are different in the analyzed languages.

7.1.3.2 Pronominal reference

In the domain of pronominal reference, the distribution of referential expressions within each pronominal type is very different in each of the languages (see Figure 28), as has been repeatedly described above in the intralinguistic comparison. This is due to the fact that, although the referential systems of these languages have the same pronominal types of referential expressions, their functions are often quite different. So, in child narrative discourse, the main type of pronominal reference in Russian is PRO, whereas in German, there are two main types of pronominal reference, PRO and DEM, and used for the same purpose. This is clearly reflected in the distribution of these types of referential expressions.

In Russian, the number of PROs reaches 20% out of all referential expressions in the monolingual sample and 27% in the bilingual sample (DEMs are used only in 1% of cases in both samples). In German, PROs and DEMs are similarly distributed: 11% vs. 16% in the monolingual sample and 19% vs. 16% respectively in the bilingual sample. The use of zero reference (0PROs), which is also frequent in both languages, is more restricted in German than in Russian due to some morphosyntactic constraints. It is clearly seen in the comparison of the monolingual samples: Russian monolinguals use 0PROs thrice as much as German monolinguals (16% vs. 5% respectively). A detailed statistical analysis is given below.

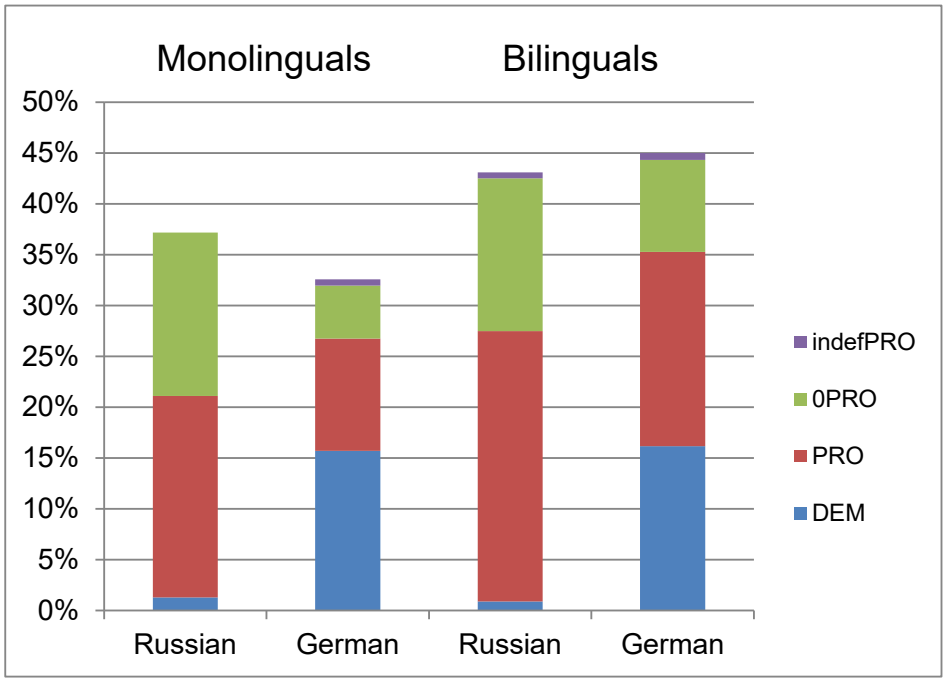


Figure 28. Types of pronominal expressions in Russian vs. German in monolingual and bilingual children: distribution by sample and language (in %)

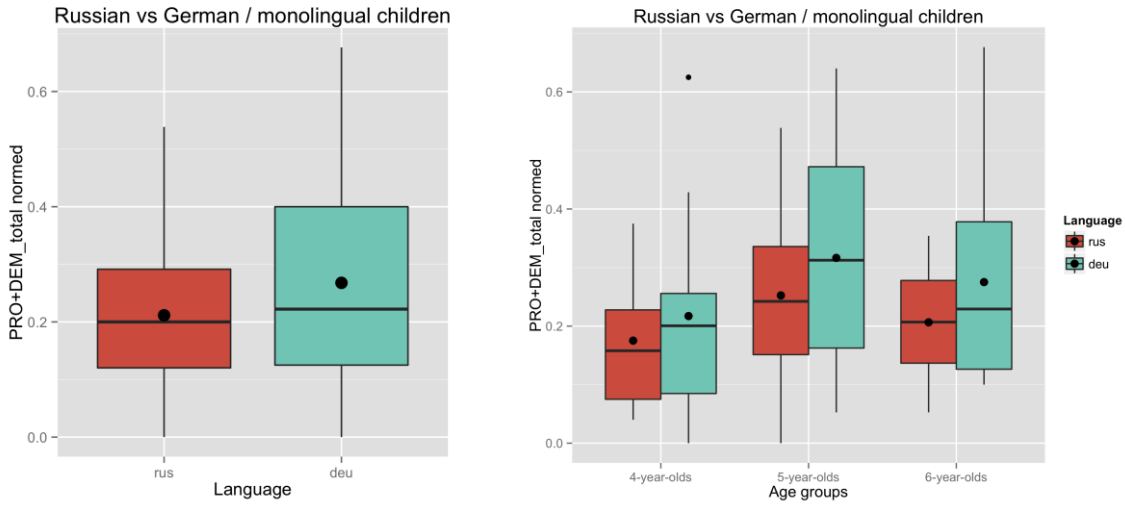
Overt pronominal reference

The data for the overall use of PROs+DEMs[74] in monolingual samples are presented in Figure 29a. Indeed, German monolinguals use slightly more PROs+DEMs than Russian ones, 27% and 21% respectively. The difference, however, is not statistically significant (one-sided Welch t-test, t (55.916) = -1.46, p = 0.075). Furthermore, the comparisons of the use of PROs+DEMs in Russian and German within age groups (see Figure 29b) do not reveal significant differences (one-sided Welch t-test, t (18.994) = -0.69, p = 0.25 in 4-year-olds,

[74] For the comparison of PROs+DEMs, Russian DEMs have also been included in the analysis. Although Russian DEMs have a different function and are rarely used in this type of discourse, as has already been shown in the intralinguistic comparison, they cannot be completely excluded, as DEMs in German can occasionally be used in the same way as DEMs in Russian, e.g., for contrastive purposes.

t (19.033) = -0.85, p = 0.20 in 5-year-olds, and t (12.972) = -1.055, p = 0.16 in 6-year-olds), although the impression is that German monolinguals use far more PROs+DEMs than Russian monolinguals in all age groups. These results show that the tendency towards the more extensive use of overt pronominal reference in German as opposed to Russian was predicted correctly, but it is not significant.

In the analysis of variance across age groups, no significant difference has been found in either sample (one-way ANOVA, F (2, 32) = 1.15, p = 0.33 for Russian; F (2, 30) = 0.83, p = 0.45 for German). In the analysis of the interaction between samples and languages there is also no significant difference (two-way ANOVA, F (2, 62) = 0.05, p = 0.95). Thus, the results indicate similar performance and development over age in both languages, but do not confirm the decreasing developmental pattern predicted for the analyzed age range, given that the number of PROs+DEMs first increases between age 4 and 5 and then slightly decreases between age 5 and 6.



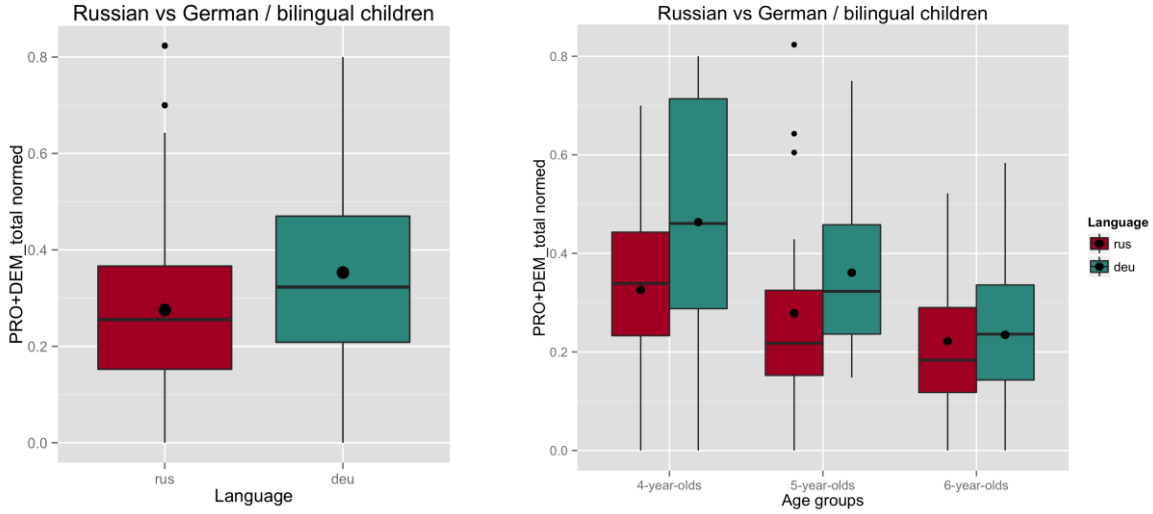
*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 29. PROs+DEMs in Russian vs. German in monolinguals

In contrast to the monolingual sample, the overall use of PROs+DEMs in Russian and German is significantly different in the bilingual sample (see Figure 30a), 28% in Russian vs. 35% in German (one-sided paired t-test, t (59) = -2.71, p = 0.004**). Thus, bilingual children in the analyzed sample use considerably more PROs+DEMs in German than in Russian. Comparing the use of PROs+DEMs in each age group (see Figure 30b), one can observe that in all age groups bilingual children use more PROs+DEMs in German than in Russian. The difference is statistically significant in 4- and 5-year-olds but not in 6-year-olds (one-sided paired t-test, t (19) = -2.23, p = 0.019*; t (19) = -1.75, p = 0.048*; t (19) = -0.37, p = 0.36 respectively). Thus, although bilingual children show a different performance at age 4 and 5 in Russian and German, at age 6 it is no longer different in the crosslinguistic

comparison. In addition, these results indicate the more extensive use of overt pronominal reference in German in comparison to Russian for 4- and 5-year-old bilinguals, as predicted for this type of referential expression.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

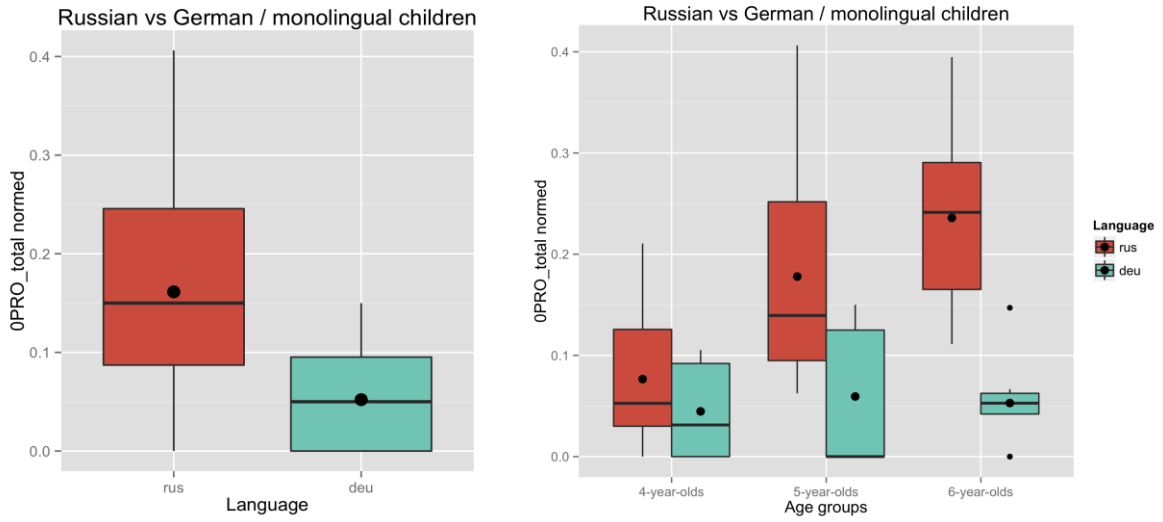
Figure 30. PROs+DEMs in Russian vs. German in bilinguals

With regard to the development across age groups, there is a continuous decrease in the use of PROs+DEMs in both Russian and German, though this decrease is more pronounced in German. Indeed, the analysis of variance shows a significant difference in German (one-way ANOVA, $F(2, 57) = 6.81$, $p = 0.002$**) but not in Russian ($F(2, 57) = 1.67$, $p = 0.20$). The variance is explained only by the comparison between 4- and 6-year-olds (multcomp tests, $p = 0.001$**), meaning that the developmental change occurs gradually between age 4 and ages 5 and 6. The analysis of interaction between age groups and languages does not show a significant difference (two-way ANOVA for repeated measures, $F(1, 58) = 3.28$, $p = 0.076$). Thus, although the developmental pattern in bilinguals differs from the monolingual pattern, they are similar in the crosslinguistic comparison of the bilingual sample. Furthermore, the results indicate a decrease in the use of overt pronominal reference over age in both languages.

Zero reference

With regard to the use of 0PROs, the situation is quite different from the use of PROs+DEMs. Here, the language-specific use of this type of referential expression seems obvious. Considering first the overall use of 0PROs in monolingual samples (see Figure 31a), it is not surprising to see that the difference between Russian and German is considerable, with 16% out of all referential expressions in Russian and 5% in German. The

difference is statistically significant with a high degree of confidence (one-sided Wilcoxon test, W = 936, p < 0.0001***). The analysis within each age group (see Figure 31b) also shows significant differences for 5- and 6-year-olds (one-sided Wilcoxon test, W = 105, p = 0.008** and W = 108, p < 0.001*** respectively). Only in 4-year-olds is there no significant difference in crosslinguistic comparison (one-sided Wilcoxon test, W = 89, p = 0.16). Thus, these results indicate the more extensive use of zero reference in Russian in comparison to German for 5- and 6-year-old monolinguals as well as for the whole samples.



*The large dot inside each box represents the mean value of a group.

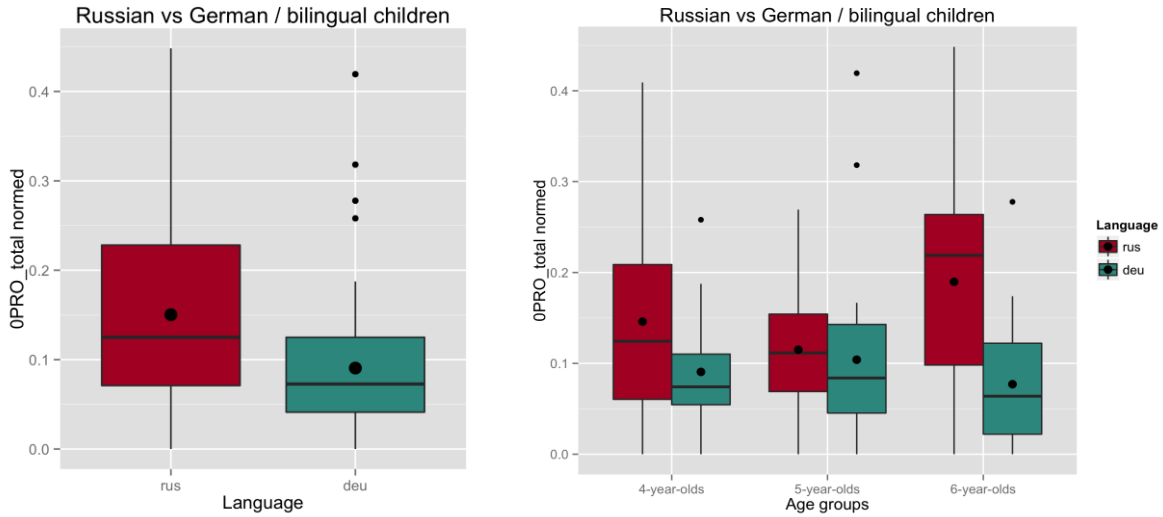
a. Whole samples b. Age groups

Figure 31. 0PROs in Russian vs. German in monolinguals

With regard to the development in the use of zero reference over age in Russian and German, monolingual children show different developmental patterns: in Russian, the use of 0PROs continuously increases with age, whereas in German, it remains almost at the same level (only the distribution within the data changes). The analysis of variance across age groups for the use of 0PROs was already performed within the intralinguistic comparison. As a reminder, the difference was significant for Russian (in particular, between 4- and 5-year-olds and 4- and 6-year-olds) but not for German. The two-way ANOVA could not be performed with data, as they are not normally distributed. Additionally, the Kruskal-Wallis test does not allow testing of the interaction between two factors. Thus, the difference in developmental patterns could not be confirmed statistically, but the patterns are clearly quite different in Russian and German.

In the bilingual sample, the overall use of 0PROs (see Figure 32a) is more comparable, with regard to the distribution of the data. However, also bilingual children clearly use more 0PROs in Russian than in German, 15% and 9%, out of all referential expressions respectively. This difference turns out to be significant with a high degree of confidence (one-

sided paired t-test, t (59) = 3.24, p < 0.001***). Regarding the differences in the use of 0PROs within each age group (see Figure 32b), one can observe that, contrary to the monolingual samples, the data have near normal distribution in every age group so that one-sided paired t-tests could be performed for all within-age-group comparisons. They confirmed a significant difference for 4- and 6-year-olds (t (19) = 2.02, p = 0.029* and t (19) = 3.35, p = 0.002** respectively). Thus, these results indicate the more extensive use of zero reference in Russian in comparison to German for 4- and 6-year-old bilinguals as well as for the whole samples.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 32. 0PROs in Russian vs. German in bilinguals

The developmental patterns in the use of 0PROs in Russian and German were already analyzed in the intralinguistic analysis of the languages. As a reminder, no significant variation was found either in Russian or in German. Here, the focus is on the interaction between age groups and languages. The analysis did not show a significant difference (two-way ANOVA for repeated measures, F (1, 58) = 3.28, p = 0.076), indicating similar developmental patterns in Russian-German bilinguals in crosslinguistic comparison.

7.2 Pragmatic use of referential expressions

This section presents the results on the pragmatic use of referential expressions in the analyzed narratives. As a reminder, *pragmatic* use is determined by the use of reference with regard to the referent's information status, *new*, *given,* and *accessible*, according to the classification described in Chapter 2, section 2.2. The information status is claimed to be one of the main factors influencing referential choice. The analysis includes the distribution of

different referential types used for introducing, maintaining, and reintroducing referents in the narrative discourse in the respective samples and age groups in Russian and German. The results are presented with respect to the hypotheses and specific predictions formulated in Chapter 5.

For the analysis, only those types that proved to be the most representative in the respective language are taken into account: bareN, PRO, 0PRO in Russian and in/defNP, DEM, PRO, and 0PRO in German. DemNP, being of special interest in the bilingual sample in Russian, is also included in the analysis in order to see whether there are any peculiarities in the pragmatic use of this type of referential expression that are bound to the referent's information status. All other types of referential expressions are excluded from further analysis, as they were underrepresented in each sample (below 2%).

Each subsection presents a separate detailed analysis of referential expressions with regard to their information status for each language separately (7.2.1 for Russian, 7.2.2 for German) and in crosslinguistic comparison (section 7.2.3). First, the graphs with the general distribution of all analyzed referential expressions within respective categories (according to the information status *new, given,* or *accessible*) are used to demonstrate and underline the distribution of certain expressions in relation to each other. Then, the graphs with distribution over age are shown separately for each category. In both languages, the same referential types are taken into account and normed to the overall number of analyzed referential expressions within the respective category. This has been done to attain comparable reference values, including cases where a certain referential type is not always present in one of the languages (e.g., demNP in German). It is especially important for crosslinguistic comparisons that the reference values are similar. The pragmatic use of referential expressions in child discourse is illustrated by various examples, highlighting specific phenomena.

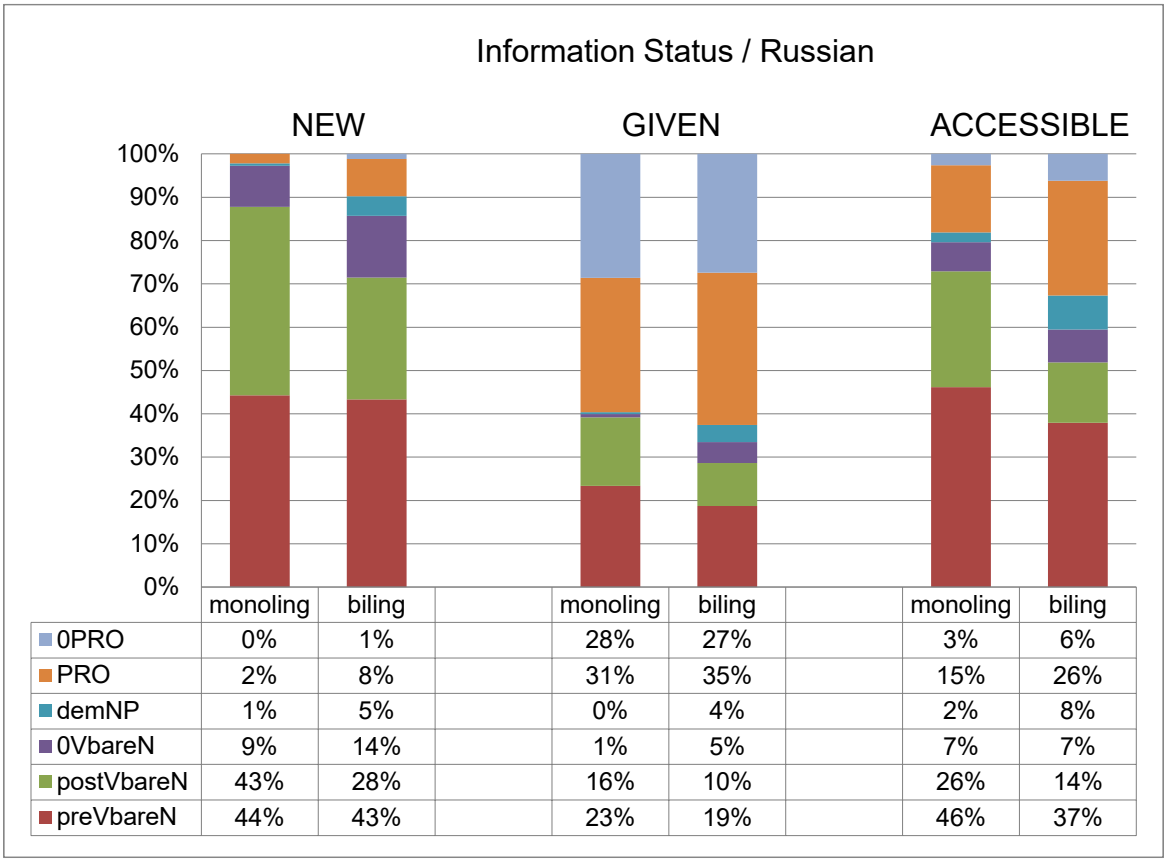
7.2.1 Russian

For the general overview, Figure 33 illustrates the overall distribution of referential expressions in Russian according to the information status of referents.

It can be seen straight away that different types of referential expressions dominate in each category in both samples, that is, referential expressions used for introducing new referents (information status *new)* are almost solely nominal (97% in monolinguals and 90% in bilinguals), whereas referential expressions used for maintaining referents (information status *given)* are mostly pronominal (59% in monolinguals and 62% in bilinguals). Referential expressions used for reintroducing referents (information status *accessible)* are predominantly nominal again (81% in monolinguals and 66% in bilinguals). This distribution is compatible with specific predictions stated in Chapter 5 about the use of referential expressions for introducing, maintaining, and reintroducing referents into the narration.

At the same time, the distribution differs in bilingual and monolingual samples. For example, it can be observed that children in the bilingual sample use more pronominal expressions (PROs and 0PROs) in each category than children in the monolingual sample:

9% vs. 2% for introducing referents, 62% vs. 59% for maintaining referents and 32% vs. 18% for reintroducing referents respectively. Also, demNPs are practically only used by bilingual children and are present in all categories to almost the same degree (5%, 4%, and 8%, out of all referential expressions within the respective category).



	NEW monoling	NEW biling	GIVEN monoling	GIVEN biling	ACCESSIBLE monoling	ACCESSIBLE biling
0PRO	0%	1%	28%	27%	3%	6%
PRO	2%	8%	31%	35%	15%	26%
demNP	1%	5%	0%	4%	2%	8%
0VbareN	9%	14%	1%	5%	7%	7%
postVbareN	43%	28%	16%	10%	26%	14%
preVbareN	44%	43%	23%	19%	46%	37%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

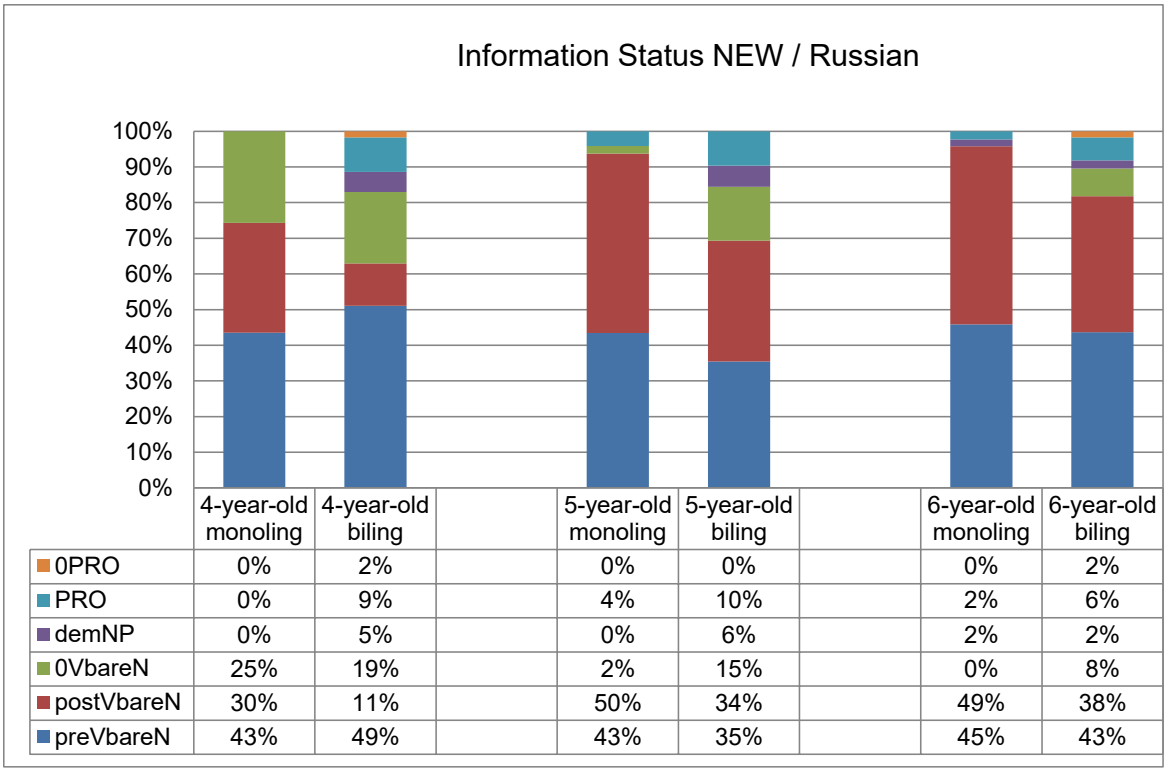
Figure 33. Types of referential expressions in Russian in monolingual and bilingual children: distribution by information status (NEW, GIVEN, ACCESSIBLE) and sample (in %)

The subsequent sections present detailed analyses of the representative types of referential expressions used for introducing, maintaining, and reintroducing referents, focusing on the similarities and differences between monolingual and bilingual samples over age as well as their pragmatic development.

7.2.1.1 Introduction of discourse referents (information status *new*)

Figure 34 presents the distribution of referential expressions used for introducing new referents by monolingual and bilingual children in Russian, i.e., those referential expressions that have the information status *new*. In each age group, the proportions are given in relation to all analyzed referential expressions within the corresponding group. The short description is merely designated to give a general overview of the distribution of referential types in

relation to each other; a detailed analysis of each presented referential type is given in the section below.



	4-year-old monoling	4-year-old biling		5-year-old monoling	5-year-old biling		6-year-old monoling	6-year-old biling
0PRO	0%	2%		0%	0%		0%	2%
PRO	0%	9%		4%	10%		2%	6%
demNP	0%	5%		0%	6%		2%	2%
0VbareN	25%	19%		2%	15%		0%	8%
postVbareN	30%	11%		50%	34%		49%	38%
preVbareN	43%	49%		43%	35%		45%	43%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 34. Types of referential expressions with information status NEW in Russian in monolingual and bilingual children: distribution by sample and age group (in %)[75]

For the analysis of referential expressions used for introducing new referents (information status *new*) an additional distinction[76] with regard to bareN was made: *preverbal* vs. *postverba*l bareN (preVbareN and postVbareN) as well as bareN in verbless sentences (0VbareN)[77]. The syntactic position of a noun in Russian plays an important role in the interpretation of the referent's information status. In Russian, postverbal bareNs tend to be interpreted as indefinite, referring to a new entity, and preverbal ones as definite, referring to an already given entity (see Brun 2001, King 1995; see also Chapter 4 for more details). In addition, this distinction allows for better comparison with German, where the opposition

[75] In addition to small discrepancies due to rounding, bareNs used as right or left dislocation or in subordinate clauses were not coded as preverbal or postverbal but as bareNs in a clause with a finite verb (see more details in the description of the coded categories in Chapter 6, section 6.6). These instances were included in the overall number of produced bareNs, since in German all in/defNPs were automatically included in the overall number of corresponding NPs regardless of their syntactic position or verb finiteness.

[76] In other categories, this distinction no longer plays a role, as referents already have the information status given or accessible, i.e., they are definite and can be used both preverbally and postverbally depending on their syntactic role, number of referents in a sentence, type of sentence, etc.

[77] Verbless sentences are grammatically correct in Russian under specific conditions, e.g., sentences such as *Vot koshka* (*Here cat*), and are suitable for the introduction of referents into the narration.

between definite and indefinite noun phrases is explicitly marked through articles. BareNs in verbless sentences are considered separately, as their interpretation with regard to definiteness is often ambiguous.

It can be clearly seen that monolingual as well as bilingual children of all age groups predominantly use bareNs of different types in order to introduce new referents, whereas pronominal types are present to a much lower degree. In the monolingual sample, 4-year-olds exclusively use bareNs, and only 4% and 2% of PROs are present in 5- and 6-year-olds respectively. In the bilingual sample, the distribution is a little bit different, as PROs are used in all age groups: 9% by 4-year-olds, 10% by 5-year-olds, and 6% by 6-year-olds. Moreover, they even occasionally use 0PROs, which means that they do not introduce new referents at all. However, the number of 0PROs is minimal in all age groups, varying between 0% and 2%.

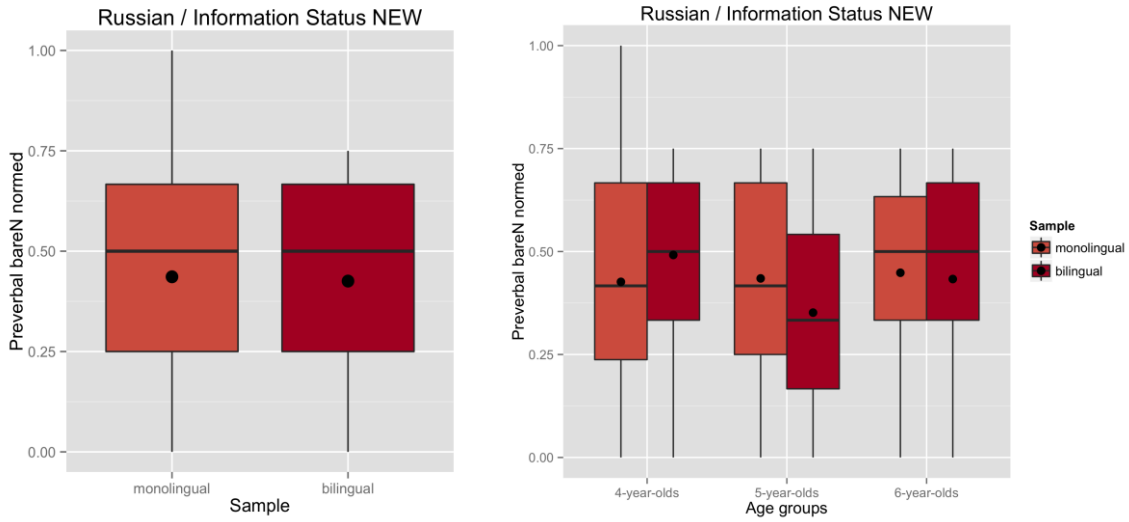
As for the proportions of postVbareNs (which are interpreted as indefinite and are therefore more appropriate for introducing new referents) in different age groups, there is, except for the groups of 5- and 6-year-old monolinguals, no clear preference for postVbareNs: at age 4 these are 30% postVbareNs in monolinguals and only 11% in bilinguals; at age 5 these are already 50% in monolinguals and 34% in bilinguals; and finally at age 6 these are 49% in monolinguals and 38% in bilinguals. Thus, the number of postVbareNs seems to grow considerably with age in both samples. At the same time, the proportion of preVbareNs does not seem to diminish with age, except for its use in 5-year-old bilinguals. What seems to change dramatically is the use of 0VbareNs (which can be treated as indefinite or definite), at least in monolinguals: at age 4 these are 25% in monolinguals and 19% in bilinguals; at age 5 these are only 2% in monolinguals and 15% in bilinguals; and finally at age 6 these are 0% in monolinguals and 8% in bilinguals.

Detailed statistical analyses are presented below for each referential type used for introducing new referents. First, the comparisons are made between monolingual and bilingual samples taken as a whole as well as within age groups. Then, the development over age is considered, i.e., the comparisons are made across age groups within each sample and, if applicable, also with regard to the interaction between the samples and age groups.

PreVbareNs

With regard to the use of bareNs in preverbal position for the introduction of referents into the narration, the analysis shows that, out of all analyzed referential expressions with the information status *new* in Russian, a similar number of preVbareNs are used in the monolingual and bilingual samples: 44% in monolinguals and 43% in bilinguals. The data distribution is near normal in each sample (see Figure 35a). According to the performed statistical test (Welch t-test, $t(69.628) = 0.19$, $p = 0.85$), the samples do not differ significantly. With regard to the use of preverbal bareNs in different age groups (see Figure 35b), at first glance, the mean values of the groups differ from each other: 43% in 4-year-old monolinguals and 49% in bilinguals, in 5-year-olds 43% and 35% respectively and in 6-year-

olds 45% and 43% respectively. However, the difference between monolingual and bilingual children in each age group is statistically not significant, based on the corresponding tests (Welch t-test, t (18.77) = -0.56, p = 0.52 for 4-year-olds, t (24.98) = 0.92, p = 0.36 for 5-year-olds, t (20.52) = 0.15, p = 0.88 for 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 35. PreVbareNs in Russian / Information status NEW

As for developmental patterns in monolingual and bilingual samples, there is not much change between 4 and 6 years of age: on average monolingual children use 43% of preVbareNs in all age groups with slight differences in the data variation. The analysis of variance between age groups confirms that there is no evidence for a difference in monolingual children (one-way ANOVA, F (2, 32) = 0.02, p = 0.98). In bilingual children, the situation seems to be different, as the proportions of preVbareNs vary between age groups: 49% in 4-year-olds, 35% in 5-year-olds, and 43% in 6-year-olds. However, according to the analysis of variance (one-way ANOVA), the results show that in the bilingual sample there is also no significant difference across age groups (F (2, 57) = 1.6, p = 0.22). A two-factorial analysis of variance shows no significant interaction between age groups and samples either (two-way ANOVA, F (2, 89) = 0.62, p = 0.54). Thus, the results indicate similar performance and development over age in bilinguals and monolinguals but do not show the predicted decrease in the use of preVbareNs for introducing new referents in Russian.

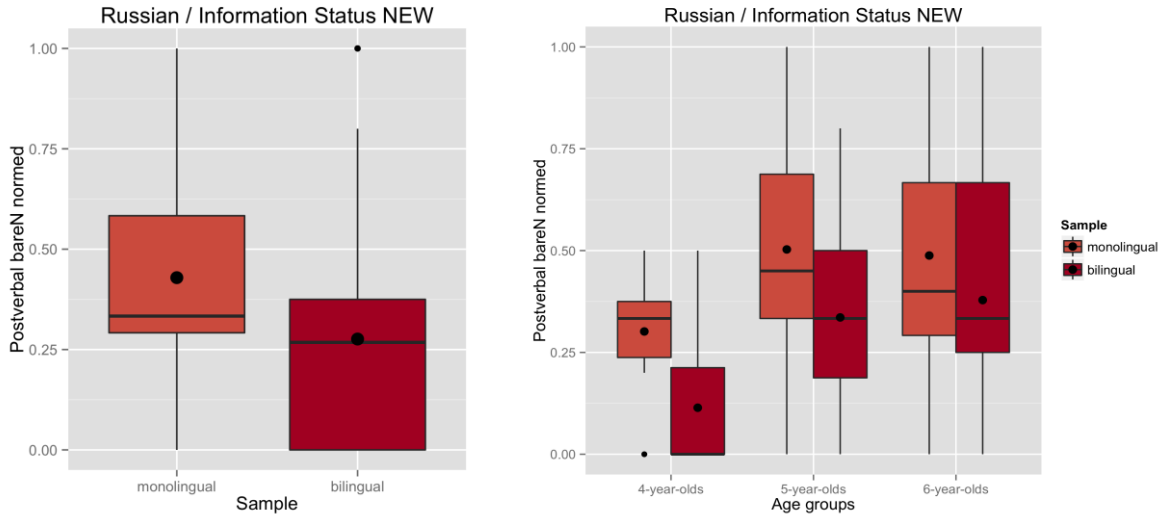
Typical examples demonstrating the use of preVbareNs for introducing new referents in monolingual and bilingual samples are given below. In both examples the new referents, bird and fox, are introduced as preverbal subjects and interpreted as definite.

(84) *Snachala ptica* *smotrit*. (CAT, mr068, 6;1)
at.first bird$_{F\text{-}SG:NOM}$ look$_{IPFV\text{-}PRS:3SG}$
At first (the) bird is looking.
ptica|T-bareN-S-NOM-Mn-PreV-New-FM-Ref=m-bird

(85) *Lisa* *tixo* *prishla*. (FOX, br047, 6;10)
fox$_{F\text{-}SG:NOM}$ quietly come$_{PFV\text{-}PST:SG:F}$
(*The) fox came quietly.*
lisa|T-bareN-S-NOM-Mn-PreV-New-FM-Ref=fox

PostVbareNs

It was stated above that bareNs in postverbal position are interpreted as indefinite when used for the first time. PostVbareNs should therefore be a preferable variant for introducing new referents into the narration. Indeed, it is rather frequently used as a variant, though not dominantly, for reference introduction in both samples. Monolingual children make use of this type more often than bilingual children: 43% vs. 26% respectively, out of all analyzed referential expressions with the information status *new* (see Figure 36a). As the data are not normally distributed in the bilingual sample, a Wilcoxon test has been performed for checking if there is a statistically significant difference between the samples. The result confirms the difference with a high level of significance (W = 1397.5, p = 0.006**).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 36. PostVbareNs in Russian / Information status NEW

By looking at each age group separately, one can state that the differences persist in all age groups but to different degrees: 30% in 4-year-old monolinguals vs. 11% in 4-year-old bilinguals, 50% vs. 34% in 5-year-olds, and 49% vs. 38% in 6-year-old monolinguals and bilinguals respectively. Although the mean values seem to differ considerably, the data

distribution looks similar in almost all groups except for the youngest age group, where the distribution is clearly different (see Figure 36b). According to the statistical tests performed for each age group, Wilcoxon test for 4-year-olds and Welch t-test for 5- and 6-year-olds, the difference is only significant for the group of 4-year-olds ($W = 185$, $p = 0.008^{**}$). This suggests that the significant difference between the whole samples is not displayed through all age groups and should be interpreted carefully.

With regard to the developmental changes in monolingual and bilingual samples, in contrast to the use of preVbareNs, there seems to be a developmental shift in both samples between age 4 and 5, where the use of postVbareNs increases from 30% to 50% in 4-year-old and 5-year-old monolinguals respectively and from 11% to 34% of postVbareNs in 4-year-old and 5-year-old bilinguals. However, the analysis of variance across age groups revealed a significant difference only for the bilingual sample (Kruskal-Wallis test, $x^2 (2) = 12.70$, $p = 0.002^{**}$). The subsequent post-hoc tests, performed for single age groups, confirm the differences in the comparison of 4- and 5-year-olds and the comparison of 4- and 6-year-olds (pairwise Wilcoxon tests, $p = 0.008^{**}$ and $p = 0.003^{**}$ respectively). In the monolingual sample, the analysis of variance between age groups showed no significant difference (one-way ANOVA, $F (2, 32) = 2.21$, $p = 0.13$). A two-factorial analysis of variance could not be performed due to the missing precondition regarding the data distribution.

Overall, the results indicate similar development in both samples in the use of postVbareNs, increasing with age, which is more pronounced in the bilingual sample. At the same time, the proportion of postVbareNs was already much higher in 4-year-old monolinguals. These results show that by age 5 bilingual children have quickly caught up to the monolingual level of performance, and that both bilingual and monolingual children do not show significant changes between age 5 and 6.

The developmental shift in bilinguals as well as an already proper introduction of new referents by monolinguals in the youngest age group is demonstrated in the examples below:

(86) *Prishla* *koshka*. (CAT, mr087, 4;1)
come$_{PFV\text{-}PST:SG:F}$ cat$_{F\text{-}SG:NOM}$
(*A) cat came.*
koshka|T-bareN-S-NOM-Mn-PostV-New-FM-Ref=cat

(87) *Priletela* *ptichka.* (FOX, br016, 5;06)
fly.here$_{PFV\text{-}PST:SG:F}$ bird$_{F\text{-}SG:NOM}$
(A) bird flew in here.
ptichka|T-bareN-S-NOM-Mn-PostV-New-FM-Ref=bird1

(88) *A potom* *prishla* *lisa*. (FOX, br016, 5;6)
and then come$_{PFV\text{-}PST:SG:F}$ fox$_{F\text{-}SG:NOM}$
And then (a) fox came.
lisa|T-bareN-S-NOM-Mn-PostV-New-FM-Ref=fox

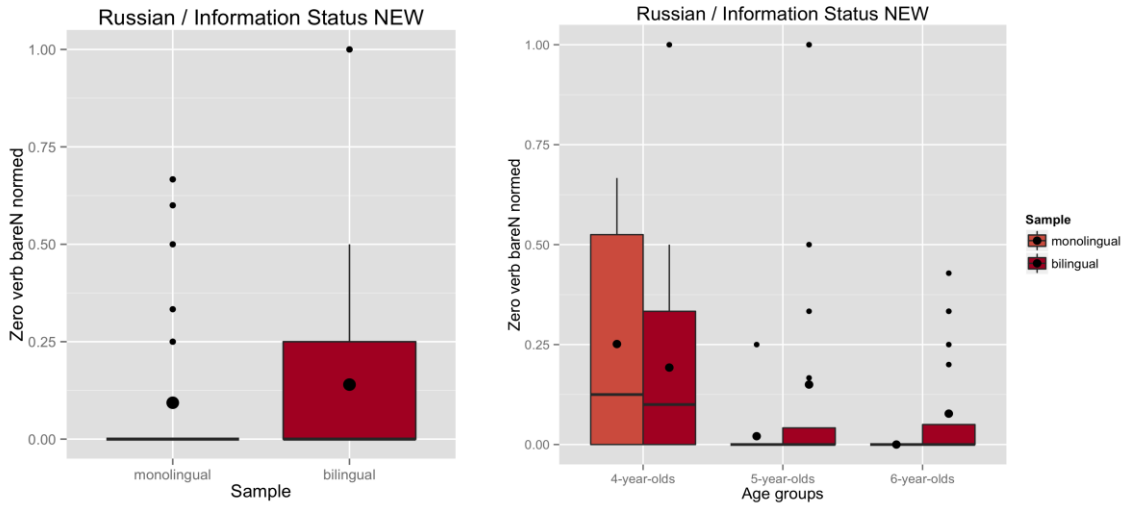
(89) *Ptica* *vzjala* *ptencov*. (CAT, mr032, 4;7)
bird$_{F\text{-}SG:NOM}$ take$_{PFV\text{-}PST:SG:F}$ nestling$_{M\text{-}PL:ACC}$
(The) bird took nestlings.
ptica|T1-bareN-S-NOM-Mn-PreV-New-FM-Ref=m-bird
ptencov|T2-bareN-DO-ACC-Mn-PostV-New-FM-Ref=b-birds

Sentences with postverbal subjects, as shown in (86), (87), and (88) are rare in 4-year-olds but are found more often in 5- and 6-year-olds. At this point, it should also be mentioned that even older children often cannot continuously introduce new referents throughout the whole story. It is not rare for children to introduce the first referent using postVbareN but choose another type of referential expression for the second or third referent. For example, in the FOX story they properly introduce the bird and the fish but not the fox, who appears later in the story. The last example (89) also demonstrates that sometimes two referents are introduced in the same sentence, with one being introduced through a preVbareN (as a subject) and the other through a postVbareN (as an object). This way of introducing referents is present as early as in 4-year-olds, although it is generally not typical for either sample (most children in the analyzed samples tend to introduce one referent per sentence).

0VbareNs

The use of bareNs in verbless sentences (0VbareNs) seems to be a special case for introducing new referents into narration. Its proportion and distribution in the whole samples can be seen in Figure 37a. In the monolingual sample, only 9% of all analyzed referential expressions are attributed to 0VbareNs; in the bilingual sample these are 14%. The difference in mean values is probably not that much, but the data distribution displayed in the graph is rather different, given that many monolingual children who use 0VbareNs are marked as outliers. The data in the bilingual sample, on the other hand, though not normally distributed, are more consistently distributed. The difference between the samples is not statistically significant, according to the performed Wilcoxon test ($W = 927$, $p = 0.23$).

The comparisons within each age group (see Figure 37b) also do not confirm any statistical differences, according to the Wilcoxon test performed for 4-year-olds and the Fisher test performed for 5- and 6-year-olds, given a smaller number of observations in the older age groups, especially in monolinguals ($W = 97$, $p = 0.37$ for 4-year-olds; $p = 0.37$ and $p = 0.13$ for 5- and 6-year-olds respectively). Thus, although the bilingual children still use more 0VbareNs at age 5 and 6 than monolinguals (15% vs. 2% at age 5 and 8% vs. 0% at age 6 respectively), there is not enough evidence for a significant difference. Interestingly, the bilingual children use fewer 0VbareNs than the monolingual children at age 4 (19% vs. 25% respectively), which is not statistically significant, but they seemingly need more time to reduce the use of 0VbareN to a minimum.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 37. 0VbareNs in Russian / Information status NEW

With regard to the developmental patterns observed in the monolingual and bilingual samples (see Figure 37b), it can be seen that there is a considerable decrease in the use of 0VbareNs in both samples. In monolinguals, it goes from 25% at age 4 to 2% at age 5 and to 0% at age 6. In bilinguals, it goes from 19% at age 4 to 15% at age 5 and to 8% at age 6. Thus, the monolingual children practically do not use 0VbareNs anymore for introducing new referents by age 5, whereas the bilingual children continue to use them even at age 6, although to a much lower degree that at age 4. The statistical analysis performed with a Kruskal-Wallis test confirms the variance between age groups in the monolingual sample (x^2 (2) = 10.79, p = 0.005**), and the subsequent post-hoc tests (pairwise Wilcoxon tests) confirm the difference between 4- and 5-year-olds as well as between 4- and 6-year-olds (p = 0.04* and p = 0.03* respectively). In the bilingual sample, however, no significant difference was found between the different age groups (Kruskal-Wallis test, x^2 (2) = 3.22, p = 0.20).

Overall, the results indicate similar performance in bilinguals and monolinguals in the comparison between the whole samples and between single age groups. At the same time, the developmental patterns, although heading in the same direction, are more pronounced in monolinguals than in bilinguals, given the significant decrease in the use of 0VbareNs between age 4 and 5.

The following examples demonstrate the typical use of 0VbareNs in both samples:

(90) *A* *e~to* *vorona.* (FOX, mr086, 4;1)
And this crow$_{F\text{-}SG:NOM}$
And this (is) (a/the) crow.
vorona|T-bareN-S-NOM-Mn-0V-New-FM-Ref=m-bird

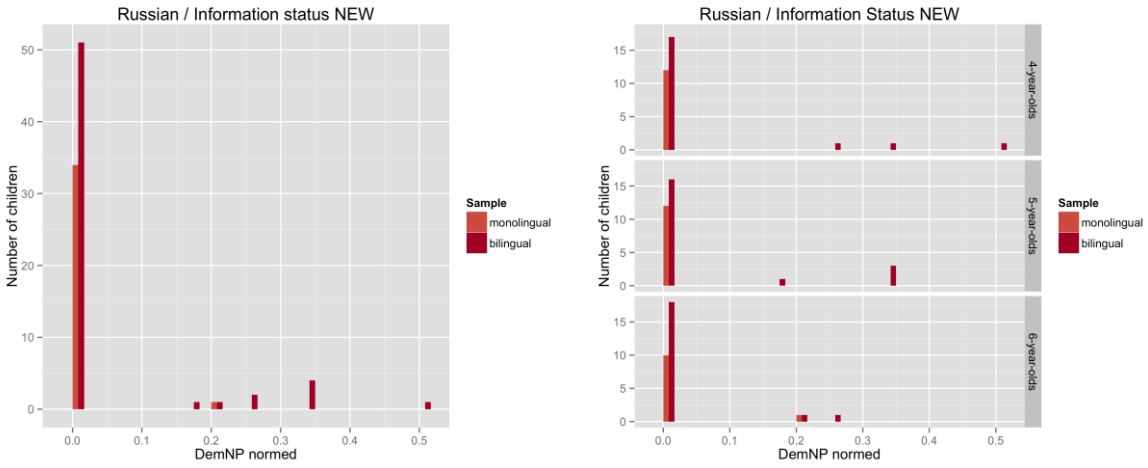
(91) *I* *rybka* *tam # tut.* (FOX, br037, 4;5)
and fish$_{F\text{-}SG:NOM}$ there here
And (a/the) fish (is) there, here.
rybka|T-bareN-S-NOM-Mn-0V-New-FM-Ref=fish

(92) *Lis.* (FOX, br024, 5;9)
he-fox$_{M\text{-}SG:NOM}$
(There is) (a/the) he-fox.
lis|T-bareN-S-NOM-0V-New-FM-Ref=fox

In examples (90) and (91) the 0VbareNs are used in verbless sentences with some variations in word order. However, even knowing that they have been used for introducing new referents, it is difficult to interpret the bareNs as definite or indefinite without a verb. In (92) the protagonist has simply been named, which happens from time to time in both bilingual and monolingual samples. Here as well, there is an ambiguous reading of the noun in terms of definiteness. Generally, whereas younger children tend to introduce new referents in Russian in verbless sentences or just by naming them from time to time, older children introduce referents embedded into complete sentences with lexical verbs, as has been shown with regard to the use of preVbareNs and postVbareNs.

DemNPs

With regard to the use of demNPs for introducing new referents into the narration, only a few demNPs were used for this purpose in both samples: 1% (n=1) and 5% (n=9), out of the total number of the analyzed referential expressions used for introducing referents in each of the samples (see Figure 38a).



a. Whole samples b. Age groups

Figure 38. DemNPs in Russian / Information status NEW

Due to the small number of observations, the comparison between samples was done with the Fisher test and came out as insignificant (p = 0.086). In the comparisons within each

age group (see Figure 38b), the bilingual children seem to use more demNPs than the monolingual children at age 4 and 5 but not at 6: 5% (n=3) vs. 0% in 4-year-olds, 6% (n=4) vs. 0% in 5-year-olds, and equally 2% (n=2 and n=1) in 6-year-olds in the bilingual and monolingual samples respectively. However, the results are insignificant for all age groups here as well (Fisher test, p = 0.27 for 4- and 5-year-olds and p = 1 for 6-year-olds).

Due to the small data size, no further statistical analysis regarding the developmental patterns was performed. It can be assumed, however, that there is not enough evidence for obtaining significant results. Overall, there is not enough evidence for a more extensive use of demNPs by bilinguals in comparison to monolinguals for introducing new referents in German.

Two examples demonstrate the use of demNPs in monolinguals and bilinguals. In monolinguals, however, this is the only occurrence of demNPs used for introducing new referents:

(93) *Ona* *rodila* *e~tix* *ptic*. (CAT, mr067, 6;2)
she$_{F\text{-}3SG:NOM}$ give.birth$_{PFV\text{-}PST:SG:F}$ this$_{F\text{-}PL:ACC}$ bird$_{F\text{-}PL:ACC}$
She gave birth to these birds.
ona|T1-PRO-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=m-bird
e~tix ptic|T2-demNP-DO-ACC-Mn-PostV-New-FM-Ref=b-birds

(94) *Priletela* *ptichka,*
fly.here$_{PFV\text{-}PST:SG:F}$ bird$_{F\text{-}SG:NOM}$
0word-s *zaxotela* *s''est'* *e~tu* *rybku*. (FOX, br016, 5;6)
want$_{PFV\text{-}PST:SG:F}$ eat$_{INF\text{-}PFV}$ this$_{F\text{-}SG:ACC}$ fish$_{F\text{-}SG:ACC}$
(A) bird flew here, (she) wanted to eat this fish.
ptichka|T-bareN-S-NOM-Mn-PostV-New-FM-Ref=bird1
word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=bird1
e~tu rybku|T2-DemNP-DO-ACC-Mn-PostV-New-FM-Ref=fish

PROs

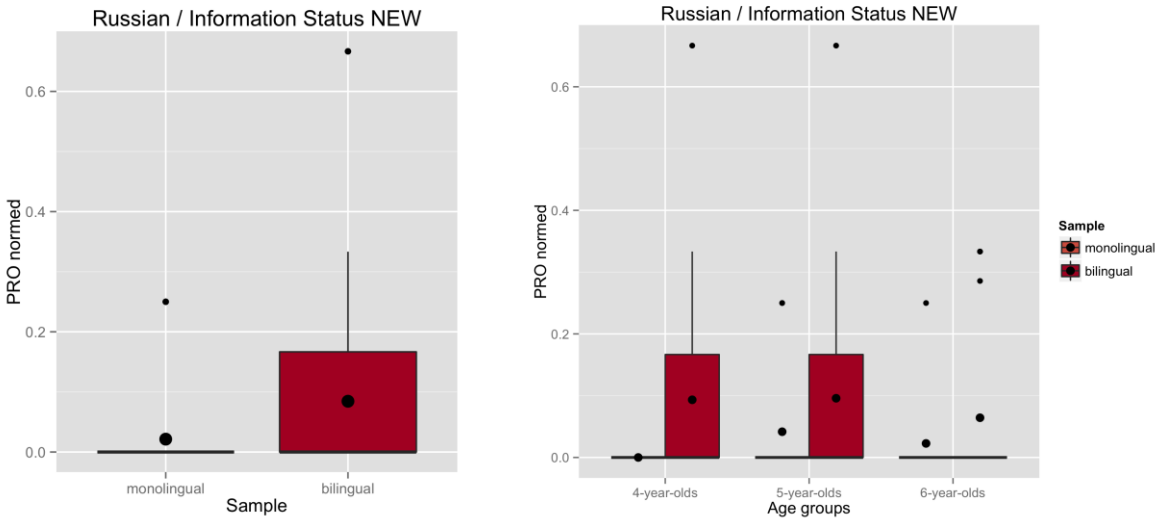
In Russian, both bilingual and monolingual children occasionally use PROs for introducing referents: up to 8% in the bilingual sample and 2% in the monolingual sample (see Figure 39a). It seems that bilinguals use PROs far more often than monolinguals; the number of children using PROs is also proportionally bigger in bilinguals than in monolinguals. Indeed, this difference is statistically significant, according to the Wilcoxon test for not normally distributed data (W = 852.5, p = 0.03*).

Looking at the age groups separately, one can see that the difference between monolingual and bilingual children persists in 4- and 5-year-olds but is smaller in 6-year-olds: 0% vs. 9% in 4-year-olds respectively, 4% vs. 10% in 5-year-olds, and 2% vs. 6% in 6-year-olds (see Figure 39b). However, according to the Wilcoxon test performed for each age group separately, only the difference for 4-year-olds turns out to be significant (W = 84, p = 0.042* for 4-year-olds; W = 103, p = 0.4 for 5-year-olds; and W = 96, p = 0.4 for 6-year-olds). At the same time, if the analysis is done with the Fisher test (which is more conservative), the difference between 4-year-old bilinguals and monolinguals also turns out

to be insignificant (p = 0.061). Thus, the significant difference for 4-year-olds should be carefully interpreted, especially since the number of observations is relatively small.

With regard to the developmental patterns, it is difficult to say anything definite, given the low number of observations. A slight tendency towards a reduction in the use of PROs can be observed in the bilingual sample (from 10% to 6%). The number of PROs used in the monolingual sample was very low from the beginning (between 0% and 4%). The analysis of variance, performed for both samples, showed no significant difference between age groups in either sample (Kruskal-Wallis test, x^2 (2) = 2.07, p = 0.36 for monolinguals and x^2 (2) = 0.47, p = 0.79 for bilinguals).

Overall, it cannot be stated with certainty that the performance and development over age in monolinguals and bilinguals is different, although bilinguals tend to use more PROs than monolinguals in all age groups.



*The large dot represents the mean value of a group.

a. Whole samples b. Age groups

Figure 39. PROs in Russian / Information status NEW

A few examples demonstrating the use of PROs for introducing new referents in the bilingual and monolingual samples are given here:

(95) *Vot ona sidela*. (CAT, mr051, 5;8)
here she$_{F\text{-}3SG:NOM}$ sit$_{IPFV\text{-}PST:SG:F}$
Here she sat.
ona|T-PRO-S-NOM-Mn-PreV-New-FM-Ref=m-bird

(96) *Tam oni vylupovalis'@innov- iz jajcov@errn-*. (CAT, mr066, 6;3)
there they$_{3PL:NOM}$ hatch$_{IPFV\text{-}PST:PL}$ from egg$_{F\text{-}PL:GEN}$
There they hatched from eggs.
oni|T-PRO-S-NOM-Mn-PreV-New-FM-Ref=b-birds

(97) *On* *uvidel* *rybku*. (FOX, br099, 6;0)
he$_{M\text{-}3SG:NOM}$ see$_{PFV\text{-}PST:SG:M}$ fish$_{F\text{-}SG:ACC}$
He saw (a) fish.
on|T1-PRO-S-NOM-Mn-PreV-New-FM-Ref=bird1
rybku|T2-bareN-DO-ACC-Mn-PostV-New-FM-Ref=fish

(98) *Ona* *rybku* *nashla*. (FOX, br017, 4;6)
she$_{F\text{-}3SG:NOM}$ fish$_{F\text{-}SG:ACC}$ find$_{PFV\text{-}PST:SG:F}$
She found (the) fish.
ona|T1-PRO-S-NOM-Mn-PreV-New-FM-Ref=bird1
rybku|T2-bareN-DO-ACC-Mn-PreV-New-FM-Ref=fish

In the first two examples, (95) and (96), it can be seen that both monolingual and bilingual children use PROs in the same manner, pronominalizing the subject representing one of the story's main protagonists (the bird or baby-birds) and ignoring the rule that a protagonist should be introduced by a nominal referential expression in order to be recognizable for a listener. At the same time, in the next two examples, (97) and (98), children introduce one protagonist (the bird) with PRO and the other (the fish) with bareN, so that the use of PROs cannot be attributed to a general lack of pragmatic competence in introducing new referents by nominal expressions.

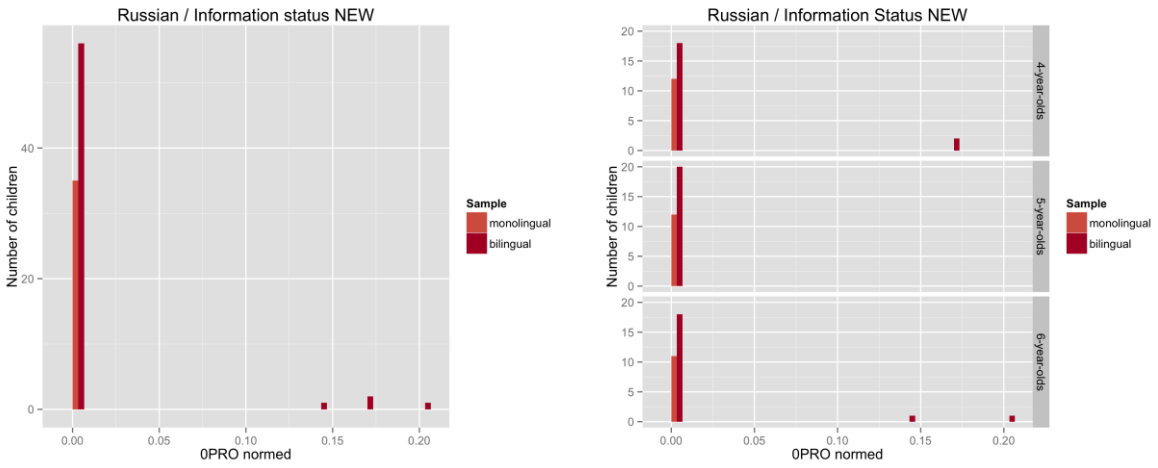
The pronominalized referents are not always subjects. In example (99) below, the child introduces the baby birds as an indirect object using PRO, whereas she or he introduced the bird by bareN as a subject in the same sentence. This also speaks for the absence of a specific strategy for the pronominalization of main protagonists from the beginning of the story.

(99) *Utochka* *xotela* *pojti*
duck$_{F\text{-}SG:NOM}$ want$_{IPFV\text{-}PST:SG:F}$ go$_{INF\text{-}IPFV}$
im *prinesti* *pokushat'*. (CAT, mr050, 5;5)
they$_{3PL:DAT}$ bring$_{INF\text{-}PFV}$ eat$_{INF\text{-}IPFV}$
(The) duck wanted to go to bring them (something) to eat.
utochka|T1-bareN-S-NOM-Mn-PreV-New-FM-Ref=m-bird
im|T2-PRO-IO-DAT-Mn-PostV-New-FM-Ref=b-birds

0PROs

As already mentioned above, sometimes new referents are not introduced at all. Such cases are very rare though. 0PROs are completely absent in monolinguals and are used only by 4 (out of 60) bilingual children (n=2 in the group of 4-year-olds and n=2 in the group of 6-year-olds), varying from 0 to 2%, out of all referential expressions in the corresponding age groups (see Figures 40a and 40b).

As the number of observations is extremely small, no statistical analysis was performed on the use of 0PROs for introducing new referents. It is presumed that the differences between bilingual and monolingual children are not significant in either comparison.



a. Whole samples b. Age groups

Figure 40. 0PROs in Russian / Information status NEW

One of the very few examples of 0PROs used by bilinguals in this context is given below:

(100) *Kiska* *xochet* *s"est'* *0-word-o*. (CAT, br064, 4;2)
cat$_{F\text{-}SG:NOM}$ want$_{IPFV\text{-}PRS:3SG}$ eat.up$_{INF\text{-}PFV}$
(The) cat wants to eat (them) up.
kiska|T1-bareN-S-NOM-Mn-PreV-New-FM-Ref=cat
word|T2-0PRO-DO-Mn-Vfin-New-FM-Ref=b-birds

In this particular example, the use of the verb *to eat up* requires an obligatory object (in this case: the baby birds). The omission of an obligatory object is the only condition when 0PROs with the information status *new* are found in the data in Russian. The use of 0PROs is therefore interpreted as occasional and erroneous.

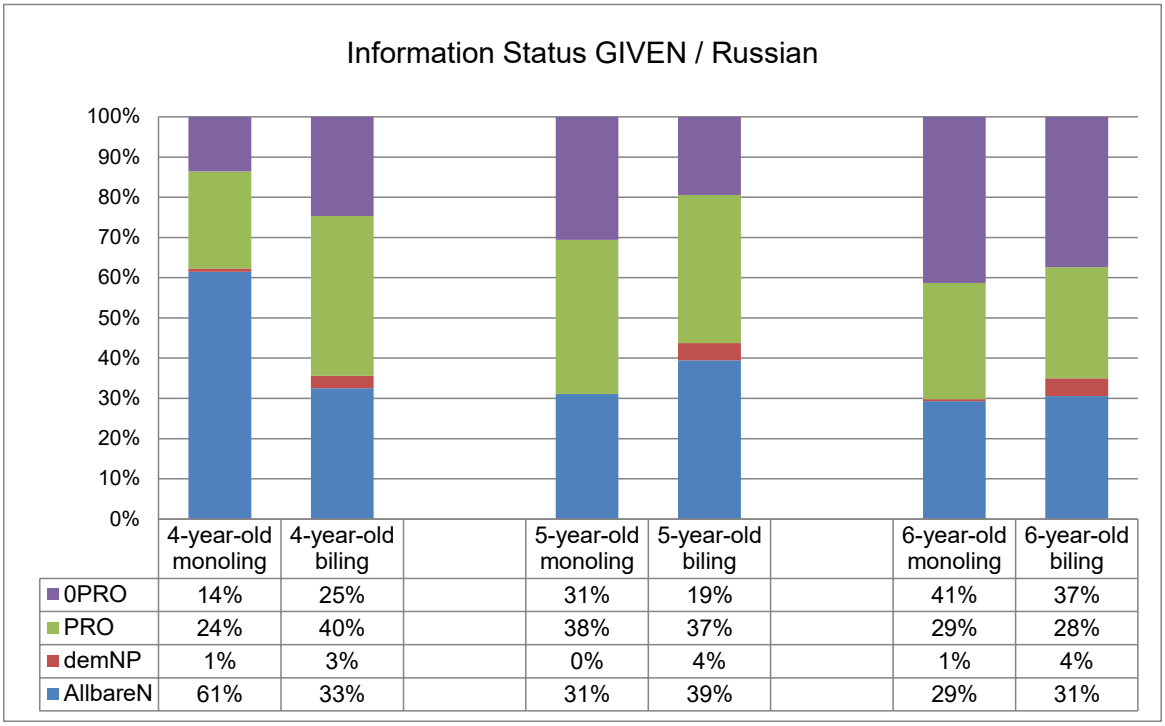
7.2.1.2 Maintenance of discourse referents (information status *given*)

The overall distribution of referential expressions used for maintaining reference in narratives (information status *given*) is presented in Figure 41.

Both monolingual and bilingual children give clear preference to pronominal expressions (PROs and 0PROs) in order to maintain reference in Russian in all age groups. This does not apply to 4-year-old monolinguals though, who use more nominal expressions than pronominal ones, namely 62% (taking all bareNs[78] and demNPs together). The proportion of PROs vs. 0PROs is different, depending on the age groups and sample (monolingual vs. bilingual). Whereas younger children tend to use more PROs than 0PROs (24% vs. 14% in

[78] For reference maintenance, the distinction between preVbareN, postVbareN, and 0VbareN is no longer needed, since all bareNs with the information status *given* are treated as definite, independently of their syntactic position relative to the verb or verb presence. The proportion of 0VbareNs is very low, 1% in the monolingual sample and 5% in the bilingual sample, indicating that 0VbareNs are used more extensively for introducing new referents rather than for maintaining them.

4-year-old monolinguals and 40% vs. 25% in 4-year-old bilinguals; 38% vs. 31% in 5-year-old monolinguals and 37% vs. 19% in 5-year-old bilinguals), the oldest ones tend to use slightly more 0PROs than PROs (41% vs. 29% in 6-year-old monolinguals and 37% vs. 28% in 6-year-old bilinguals).



	4-year-old monoling	4-year-old biling	5-year-old monoling	5-year-old biling	6-year-old monoling	6-year-old biling
0PRO	14%	25%	31%	19%	41%	37%
PRO	24%	40%	38%	37%	29%	28%
demNP	1%	3%	0%	4%	1%	4%
AllbareN	61%	33%	31%	39%	29%	31%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 41. Types of referential expressions with information status GIVEN in Russian in monolingual and bilingual children: distribution by sample and age group (in %)

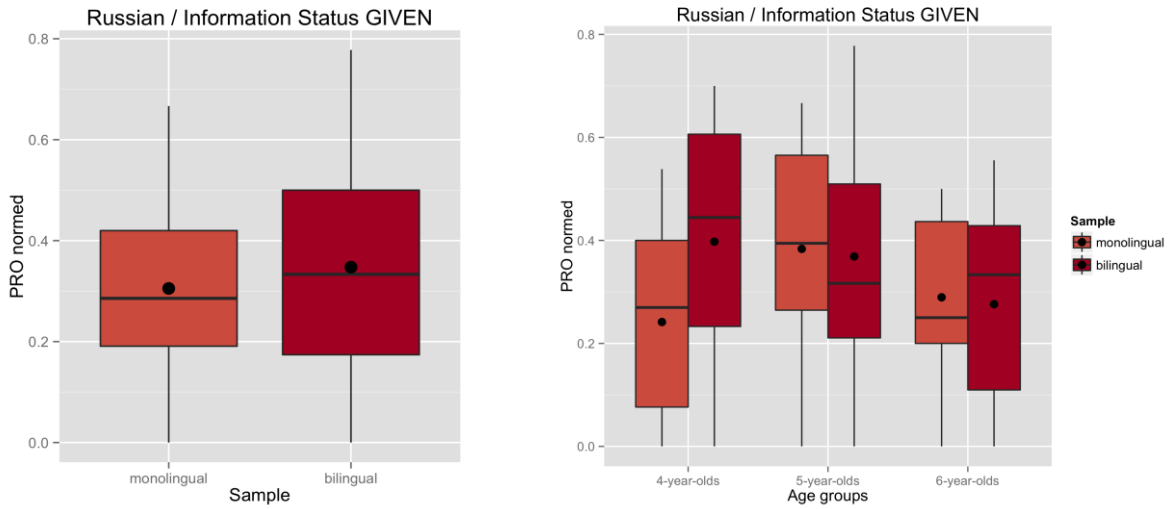
With regard to nominal expressions, only 4-year-old monolingual children use a large number of bareNs (61%) for maintaining referents, as was mentioned above, whereas monolingual children in other age groups and bilingual children in all age groups use between 29% and 39% of bareNs, out of all referential expressions with the information status *given* in the respective age group. DemNPs are rarely used for maintaining referents: 3-4% out of all referential expressions with the information status *given* in all age groups for bilinguals and barely any for monolinguals (0-1%).

The detailed analyses of the direct comparisons between monolinguals and bilinguals on the use of particular referential types in the whole samples, within and across age groups are presented below.

PROs

With regard to the use of PROs for maintaining referents, children of both samples show similar results: 31% in the monolingual sample and 35% in the bilingual sample taken as a whole, out of all referential expressions with the information status *given,* with similar data distribution that is near normal in both samples (see Figure 42a). The difference between the

samples is not significant, according to the Welch t-test (t (79.76) = -0.98, p = 0.33). In the age groups analyzed separately, a considerable difference is seen only in 4-year-olds: 24% vs. 40% in 4-year-old, 38% vs. 37% in 5-year-old, and 29% vs. 28% in 6-year-old monolinguals and bilinguals respectively (see Figure 42b). The data distribution is near normal in all age groups. The difference for 4-year-olds is indeed statistically significant, according to the Welch t-test (t (28.11) = -2.13, p = 0.042*). That is not the case for other within-age-group comparisons (t (25.46) = 0.18, p = 0.86 for 5-year-olds and t (22.17) = 0.21, p = 0.84 for 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 42. PROs in Russian / Information status GIVEN

With regard to the developmental patterns, no linear tendency could be observed in monolinguals, who first increase the number of PROs from 24% at age 4 to 38% at age 5 and then decrease it to 29% at age 6. Bilingual children, on the other hand, slightly decrease the number of PROs from 40% at age 4 to 37% at age 5 and then to 28% at age 6. However, after comparing the development in the use of PROs across different age groups in each sample, no significant difference has been found in either sample (one-way ANOVA, F (2, 32) = 1.80, p = 0.18 for monolinguals and F (2, 57) = 1.69, p = 0.19 for bilinguals). The result of the analysis of variance with two factors (age group and sample) turned out as insignificant (two-way ANOVA, F (2) = 1.67, p = 0.19).

Thus, overall, these results indicate similar performance and development over age in both samples. The performance of the 4-year-old bilinguals, although different from that of the 4-year-old monolinguals, is much closer to that of the 5-year-old monolinguals (as well as bilinguals), indicating that their performance is actually more appropriate in comparison to that of the 4-year-old monolinguals.

The examples below demonstrate the typical use of PROs in monolingual and bilingual narratives for maintaining referents in Russian:

(101) *Ee* *s''eli.* (FOX, mr033, 4;8)
she$_{F\text{-}3SG:NOM}$ eat$_{PFV\text{-}PST:PL}$
She was eaten up.
ee|T-PRO-DO-ACC-Mn-PreV-Giv:C1:S:bareN-M-Ref=fish

(102) *Oni* *byli* *malen'kie*. (CAT, mr065, 5;7)
they$_{3PL:NOM}$ be$_{IPFV\text{-}PST:PL}$ small
They were small.
oni|T-PRO-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=b-birds

(103) *Tut* *ona* *uletela*. (CAT, br038, 5;5)
here she$_{F\text{-}3SG:NOM}$ fly.away$_{PFV\text{-}PST:SG:F}$
Here she flew away.
ona|T-PRO-S-NOM-Mn-PreV-Giv:C1:S:PRO-M-Ref=m-bird

In all three examples, the reference is clear not only because the corresponding referent was mentioned in the previous clause but also from the context, e.g., in (101) *she* refers to the fish, in (102) *they* refer to the baby-birds, and in (103) *she* refers to the bird.

In the next two examples the reference is not clear from the context when seen in isolation:

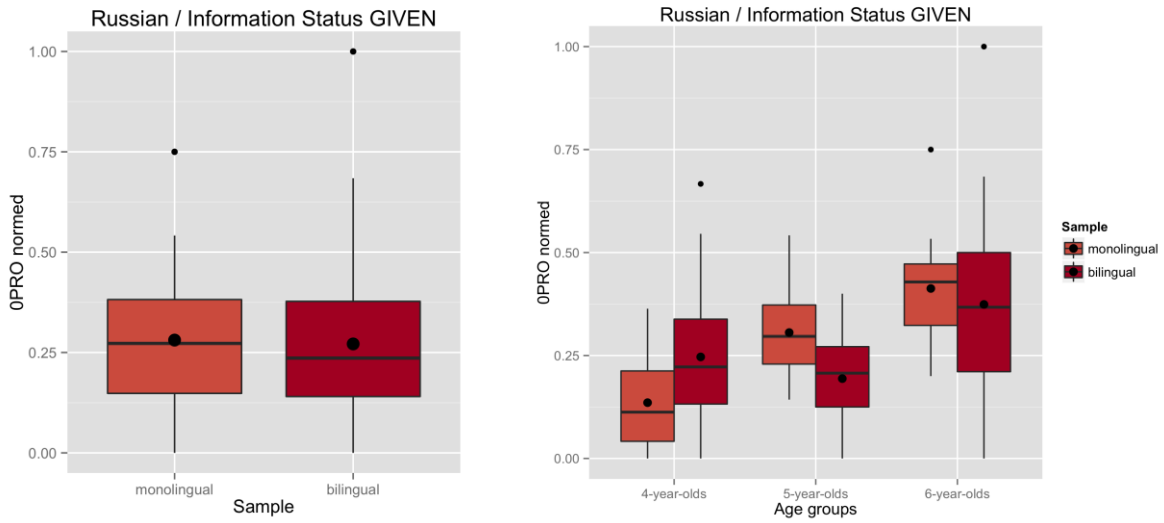
(104) *On* *xochet* *ego* *slovit'*. (FOX, br051, 5;10)
he$_{M\text{-}3SG:NOM}$ want$_{IPFV\text{-}PRS:3SG}$ he$_{M\text{-}3SG:ACC}$ catch$_{INF\text{-}PFV}$
He wants to catch him.
on|T1-PRO-S-NOM-Mn-PreV-New-FM-Ref=fox
ego|T2-PRO-DO-ACC-Mn-PostV-Giv:C1:S:0PRO-M-Ref=bird1

(105) *I* *on* *ishchet* *ego*. (CAT, br058, 4;7)
and he$_{M\text{-}3SG:NOM}$ look.up$_{IPFV\text{-}PRS:3SG}$ he$_{M\text{-}3SG:ACC}$
And he looks up for him.
on|T1-PRO-S-NOM-Mn-PreV-Giv:C1:S:0PRO-M-Ref=m-bird
ego|T2-PRO-DO-ACC-Mn-PostV-Giv:C1:PO:PRO-M-Ref=p-bird

However, the reference can be clearly identified by tracing it throughout the whole story. In (104) the first PRO *on* refers to the fox and was used for introducing a new referent (and is therefore not analyzed here), whereas the second PRO *ego* refers to the bird and is used for maintaining the referent. It should be added that this child did not name the protagonists explicitly and used only pronominal expressions throughout the whole story. In (105) both PROs are given and refer to the mother-bird and to the father-bird respectively (a child invented a father-bird in the CAT story), even though the child uses the wrong gender.

0PROs

With regard to the use of 0PROs for maintaining referents in the samples taken as a whole, there is no notable difference between the monolingual and bilingual samples: the mean value is 28% in monolinguals and 27% in bilinguals, out of all referential types with the information status *given* (see Figure 43a). The data distribution is rather similar and is near normal, except for one outlier per sample. The difference is clearly not significant from a statistical point of view (Welch t-test, t (80.38) = 0.24, p = 0.8). However, in the comparison of the mean values within each age group, more variation is given: 14% vs. 25% in 4-year-old monolinguals and bilinguals respectively, 31% vs. 19% in 5-year-olds, and 41% vs. 37% in 6-year-olds, reaching almost the same number as compared to the number of PROs in both samples by age 6 (see Figure 43b). Despite partly noticeable differences between monolingual and bilingual performance, only the difference for 5-year-olds turns out to be statistically significant (Welch t-test, t (22.7) = 2.52, p = 0.02* for 5-year-olds; t (29.87) = -1.99, p = 0.06 for 4-year-olds; and t (28.20) = 0.55, p = 0.59 for 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 43. 0PROs in Russian / Information status GIVEN

As for developmental patterns, monolingual children seem to continuously increase the use of 0PROs with age (14% at age 4, 31% at age 5, and 41% at age 6), whereas bilingual children do not show a linear development, first reducing the use of 0PROs from 25% at age 4 to 19% at age 5 and then increasing it to 37% at age 6. The analysis of variance showed a significant difference across age groups in both monolingual and bilingual samples (one-way ANOVA, F (2, 32) = 12.89, p < 0.0001*** for monolinguals and F (2, 57) = 4.75, p = 0.012* for bilinguals). According to the post-hoc tests, for monolingual children the difference is significant in the comparison of 4- and 5-year-olds as well as in the comparison of 4- and 6-

year-olds (multcomp tests, p = 0.01** and p < 0.001*** respectively). In bilinguals, the difference is significant only between 5- and 6-year-olds (multcomp tests, p = 0.01**). A two-factorial analysis of variance (interaction between age groups and samples) shows that, in contrast to the use of PROs, there is a significant difference between the monolingual and bilingual development in the use of 0PROs in Russian (two-way ANOVA, F (2) = 3.29, p = 0.042*), though the level of significance is rather low.

Thus, overall, the results indicate different performance and development over age in monolingual and bilingual samples. At the same time, it was shown that at age 4 as well as at age 6 bilinguals do not significantly differ from monolinguals. This means that the difference in the development must be due to the changes that happen around age 5. By age 6, the results from both samples are again quite similar.

The examples (106) to (109) illustrate the use of 0PROs as one of the preferred devices for maintaining reference in Russian, the zero pronoun (0PRO):

(106) *I 0word-s cypljatok sejchas s''est.* (FOX, mr087, 4;1)
and chick$_{M\text{-}PL:ACC}$ now eat$_{PFV\text{-}FUT:3SG}$
Now (she) will eat (the) chicks up.
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:bareN-M-Ref=cat
cypljatok|T2-bareN-DO-ACC-Mn-PreV-Giv:C1:PO:possNP-M-Ref=b-birds

(107) *0word-s xochet pokushat'*. (FOX, br041, 4;10)
want$_{IPFV\text{-}PRS:3SG}$ eat$_{INF\text{-}IPFV}$
(She) wants to eat up.
word|T-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=bird1

(108) *0word-s xochet s''est' rybu*. (FOX, mr064, 6;5)
want$_{IPFV\text{-}PRS:3SG}$ eat$_{INF\text{-}PFV}$ fish$_{F\text{-}SG:ACC}$
(She) wants to eat (the) fish up.
lisa|T-bareN-S-NOM-Mn-PreV-New-FM-Ref=fox
word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=fox
rybu|T2-bareN-DO-ACC-Mn-PostV-Acc:C2:DO:0PRO-RI-Ref=fish

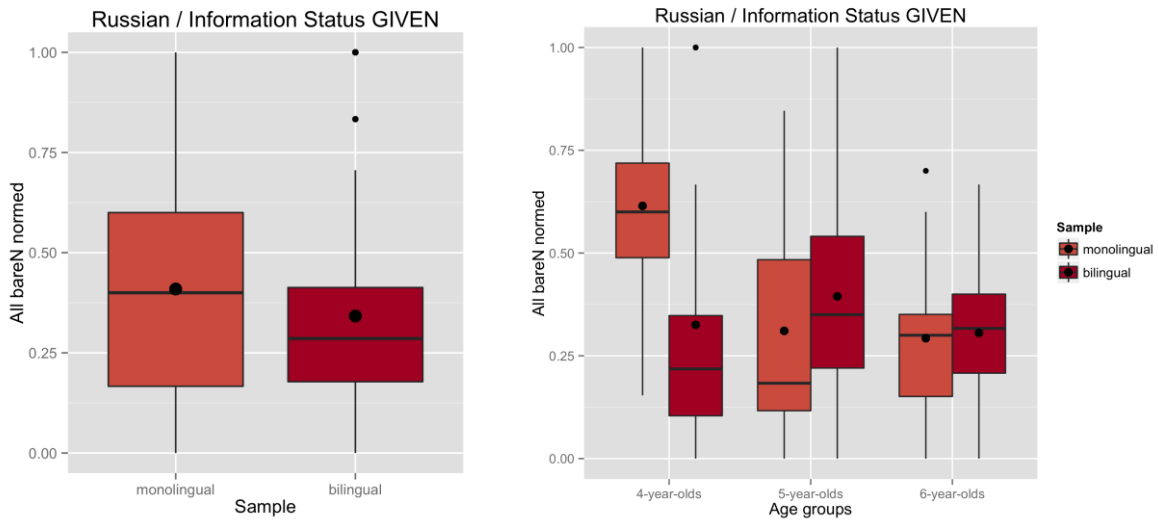
(109) *0word-s sxvatila kosh(ku) i [2x] 0word-s tjanula*
catch$_{PFV\text{-}PST:SG:F}$ cat$_{F\text{-}SG:ACC}$ and pull$_{IPFV\text{-}PST:SG:F}$
0word-o vniz. (CAT, br039, 5;7)
down
(She) caught (the) cat and pulled (her) down.
word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=dog
koshku|T2-bareN-DO-ACC-Mn-PostV-Giv:C1:DO:bareN-M-Ref=cat
word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:0PRO-M-Ref=dog
word|T2-0PRO-DO-ACC-Mn-Vfin-Giv:C1:DO:bareN-M-Ref=cat

In the presented examples, the use of 0PROs is observable in two conditions: in subsequent clauses with and without a coordinate conjunction (examples (106) and (109) as well as (107), (108), and (109) respectively). Both types are common in Russian and are used in all age groups equally by monolingual and bilingual children. As a reminder, the

omitted subject in the second coordinate clause with the same subject was also coded as 0PRO (see more details in Chapter 6, section 6.6). Usually, the antecedent of a 0PRO is a full pronoun or a noun (whether it is the same sentence or not), but in example (109) the first subject (the dog) was also omitted. This shows that sometimes children use several 0PROs successively.

BareNs

With regard to the use of bareNs for maintaining referents, both monolingual and bilingual children use this option rather frequently but not as often as pronominal referential types, as was shown above. In the comparison of the whole samples, monolingual children seem to use more bareNs than bilingual ones, namely 41% vs. 34%, out of all referential expressions with the information status *given* (see Figure 44a). The data distribution is near normal in both samples (despite two outliers in the bilingual sample). However, this difference is not statistically significant, based on the results of the Welch t-test (t (66.12) = 1.175, p = 0.24).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 44. BareNs in Russian / Information status GIVEN

When comparing monolingual and bilingual performance in the use of bareNs within age groups, the situation changes (see Figure 44b). At age 4, monolingual children use twice as many bareNs as bilingual children do, 61% vs. 33%, which is statistically significant (Welch t-test, t (29.03) = 2.91, p = 0.007**). At age 5 and 6, these are bilingual children who use more bareNs (39% vs. 31% at age 5 and 31% vs. 29% at age 6), but the difference is not statistically significant in either comparison, also based on the results of the Welch t-test (t (22.49) = -0.87, p = 0.40 for 5-year-olds and t (15.21) = -0.18, p = 0.86 for 6-year-olds).

As for developmental patterns over age, one can see that whereas monolingual children strongly reduce the use of bareNs by age 5 (from 61% to 31%), bilingual children, who already used fewer bareNs at age 4, slightly increase the number of bareNs by age 5 (from 33% to 39%). There is no change between age 5 and 6 in monolinguals (same 31%), but there is a decrease in bilinguals (from 39% to 29%). The analysis of variance confirms that there is a significant difference across age groups in monolinguals (one-way ANOVA, $F(2, 32) = 6.65$, $p = 0.004$**). The post-hoc tests show the difference between 4- and 5-year-olds as well as between 4- and 6-year-olds (multcomp tests, $p = 0.01$** and $p = 0.008$** respectively). Thus, a significant developmental change takes place between age 4 and 5, whereas between age 5 and 6 there is no significant change. In bilingual children, there are no significant changes over age from a statistical point of view (one-way ANOVA, $F(2, 57) = 0.67$, $p = 0.52$). An additional two-factorial analysis of variance (with age group and sample as factors) shows that the development over age is different in monolinguals and bilinguals (two-way ANOVA, $F(2) = 4.68$, $p = 0.01$**).

On the one hand, these results indicate different performance and development over age in Russian in monolingual and bilingual samples. On the other hand, the differences occur only in comparisons within the youngest age group, so that children from the age 5 on show similar performance in the use of bareNs for maintaining referents in Russian. It should be added that 4-year-old bilinguals perform more similar to 5- and 6-year-old monolinguals than to 4-year-old monolinguals.

The typical use of bareNs for maintaining referents in Russian is demonstrated below:

(110) *I ptica sidit s ryboj.* (FOX, mr017; 4;1)
and bird$_{F\text{-}SG:NOM}$ sit$_{IPFV\text{-}PRS:3SG}$ with fish$_{F\text{-}SG:INS}$
And (the) bird is sitting with (the) fish.
ptica|T1-bareN-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=bird1
s ryboj|T2-bareN-PO-INSTR-Mn-PostV-Giv:C1:PO:bareN-M-Ref=fish

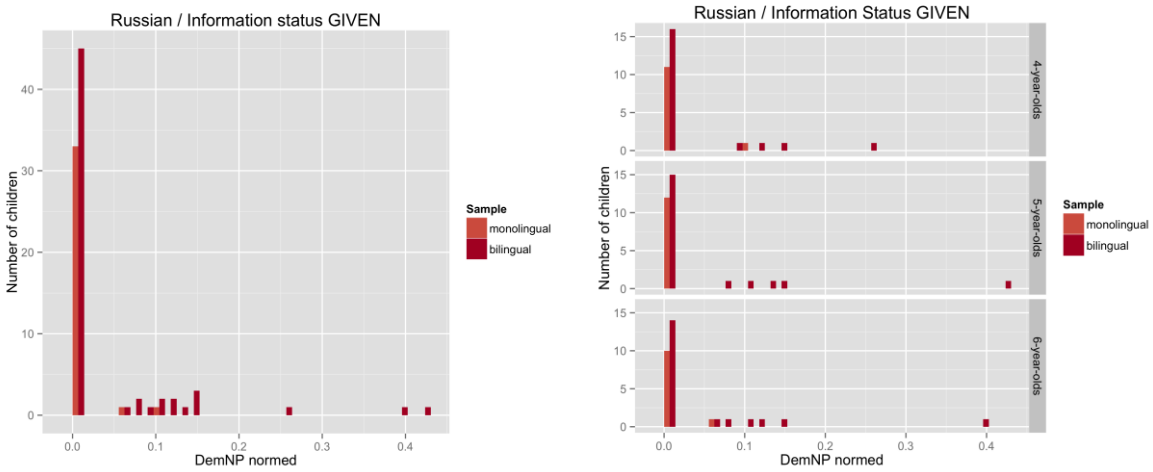
(111) *U vorony &upa &upada &u upala ryba.* (FOX, br046, 5;7)
At crow$_{F\text{-}SG:GEN}$ fall.down$_{PFV\text{-}PST:SG:F}$ fish$_{F\text{-}SG:NOM}$
(*The) crow dropped (the) fish.*
u vorony|T2-bareN-PO-GEN-Mn-PreV-Giv:C1:S:bareN-M-Ref=bird1
ryba|T1-bareN-S-NOM-Mn-PostV-Giv:C1:DO:DEM-M-Ref=fish

In both examples, bareNs are either subjects or objects, preverbal and postverbal. Their antecedents can be any types of referential expressions. It seems that there is neither specific dependency between the choice of bareNs for maintaining referents and syntactic function in the actual sentence, nor specific dependency between syntactic function and the antecedent type, although this was not analyzed in detail.

DemNPs

The use of demNPs for maintaining referents is only occasional (see Figure 45a). Overall, this referential expression is used in 4% of cases by bilinguals and 0% by monolinguals (more precisely 0,4%), out of all referential expressions with the information status *given*.

Furthermore, looking at the age groups separately, the number of demNPs is almost equal in bilinguals in all age groups: 3% in 4-year-olds, 4% in 5- and 6-year-olds (see Figure 45b). In monolinguals the number of demNPs is minimal: 1% in 4- and 6-year-olds and 0% in 5-year-olds. The results of the Fisher test show, however, that, although the difference between the monolingual and bilingual samples taken as a whole is statistically significant ($p = 0.024$*), the differences in the age group comparisons are not significant ($p = 0.63$ for 4-year-olds, $p = 0.13$ for 5-year-olds, and $p = 0.37$ for 6-year-olds). It should be said that the statistical power of the data is very limited due to the low number of observations within each age group.



a. Whole samples b. Age groups

Figure 45. DemNPs in Russian / Information status GIVEN

The results show that children in the bilingual sample use significantly more demNPs compared to monolinguals. However, the difference could be confirmed only for the whole sample, whereas with the smaller number of participants per age group there is not enough evidence for statistically relevant results.

The following examples demonstrate in which contexts bilingual children use demNPs for maintaining referents:

(112) *Potom e~ta ptica brosila*
then this$_{F\text{-}SG:NOM}$ bird$_{F\text{-}SG:NOM}$ throw$_{PFV\text{-}PST:SG:F}$
e~tu kostochku ot mjasa. (FOX, br022, 4;9)
this$_{F\text{-}SG:ACC}$ bone$_{F\text{-}SG:ACC}$ from meat$_{N\text{-}SG:GEN}$
Then this bird threw this meat bone.
e~ta ptica|T1-demNP-S-NOM-Mn-PreV-Giv:C1:S:PRO-M-Ref=bird1
e~tu kostochku|T2-demNP-DO-ACC-Mn-PostV-Giv:C1:DO:PRO-M-Ref=fish

(113) *Ushel e~tot volk*. (FOX, br016, 5;6)
go$_{PFV\text{-}PST:SG:M}$ this$_{M\text{-}SG:NOM}$ wolf$_{M\text{-}SG:NOM}$
This wolf went away.
e~tot volk|T-demNP-S-NOM-Mn-PostV-Giv:C1:S:bareN-M-Ref=fox

The exceptional use of demNPs in monolinguals is also demonstrated in (114), this is one of the only two occurrences of demNPs with the information status *given* in the monolingual sample:

(114) *Potom 0word-s zaxotela e~tu edu s''est'*. (CAT, mr081, 4;11)
then want$_{PFV\text{-}PST:SG:F}$ this$_{F\text{-}SG:ACC}$ food$_{F\text{-}SG:ACC}$ eat$_{INF\text{-}PFV}$
Then (she) wanted to eat this food up.
word||T1-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=cat
e~tu edu|T2-demNP-DO-ACC-Mn-PostV-Giv:C1:DO:bareN-M-Ref=b-birds

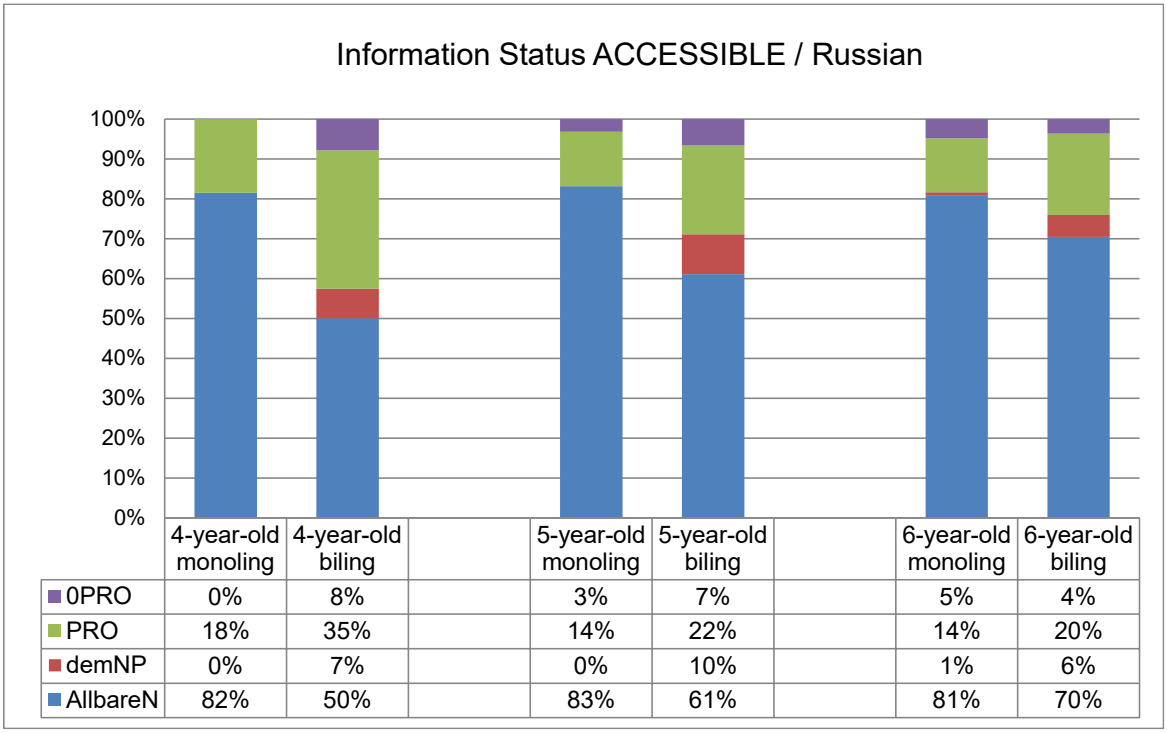
As can be seen in the presented examples, the use of demNPs is not bound to a specific protagonist, a specific syntactic function, or a syntactic position of a referent. Furthermore, the antecedents of these referential expressions are different: PROs in (112) and bareNs in (113) and (114).

7.2.1.3 Reintroduction of discourse referents (information status *accessible*)

The distribution of referential expressions used for reintroducing discourse referents in narratives (information status *accessible*) for monolingual and bilingual samples in all age groups is presented in Figure 46.

Both monolingual and bilingual children predominantly use nominal types of reference in all age groups. In bilinguals, who use fewer nominal expressions at age 4 than monolinguals, its proportion grows with age: compare 82% of all bareNs vs. 18% of PROs in monolinguals and 57% of all bareNs and demNPs taken together vs. 43% of PROs and 0PROs in bilinguals at age 4; 83% vs. 17% respectively for monolinguals and 71% vs. 29% in bilinguals at age 5 and 82% vs. 19% in monolinguals and 76% vs. 24% in bilinguals at age 6. The proportion of demNPs in comparison to bareNs is rather low, but this type of referential expression is used continuously by bilinguals in all age groups (7%, 10%, and 6% for 4-, 5-, and 6-year-olds respectively).

At the same time, the presence of PROs and even of 0PROs (which are not appropriate for reintroducing referents) in both monolingual and bilingual children should not be ignored. Even 6-year-old children use up to 5% and 4% of 0PROs as well as 14% and 20% of PROs (in monolinguals and bilinguals respectively).



	4-year-old monoling	4-year-old biling		5-year-old monoling	5-year-old biling		6-year-old monoling	6-year-old biling
0PRO	0%	8%		3%	7%		5%	4%
PRO	18%	35%		14%	22%		14%	20%
demNP	0%	7%		0%	10%		1%	6%
AllbareN	82%	50%		83%	61%		81%	70%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 46. Types of referential expressions with information status ACCESSIBLE in Russian in monolingual and bilingual children: distribution by sample and age group (in %)

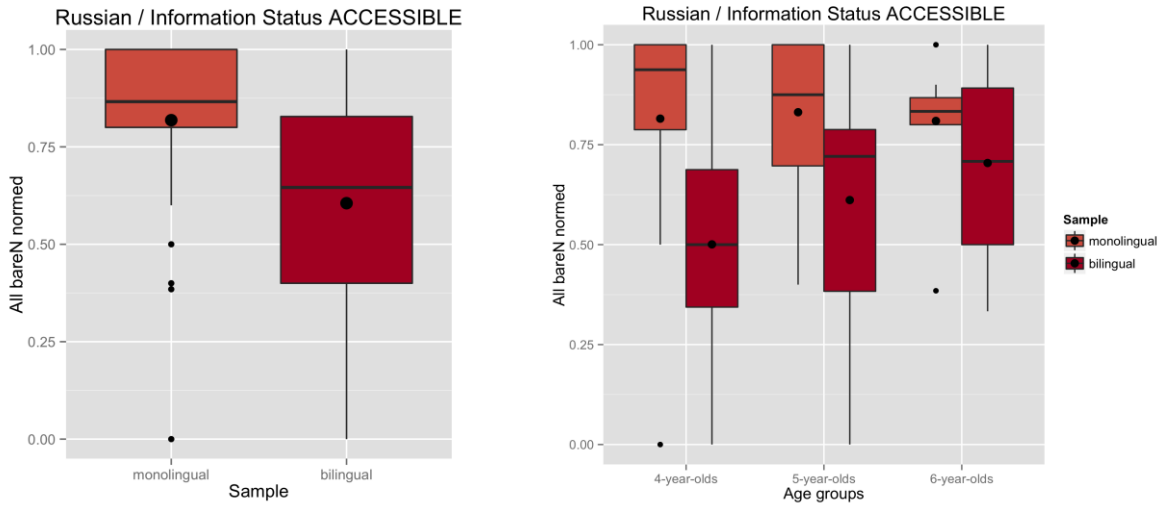
Overall, children seem to recognize early the need to reintroduce referents into narration with nominal types of referential expressions (monolinguals already at age 4), i.e., they switch to nominal types when reference maintenance is disrupted.

Detailed analyses with a focus on comparisons between monolingual and bilingual samples within age groups as well as their developmental patterns are given below.

BareNs

With regard to the use of bareNs for reintroducing referents into the narration, the distribution of the data is rather different in the monolingual and bilingual samples: 82% in monolinguals vs. 61% in bilinguals, out of all referential expressions with the information status *accessible* (see Figure 47a). As the data are not normally distributed in the monolingual sample, a Wilcoxon test was applied for this comparison. The result turned out to be significant ($W = 1485.5$, $p < 0.001$***).

In the within-age–group comparisons (see Figure 47b), the differences between monolinguals and bilinguals persist in all age groups: 82% vs. 50% in 4-year-olds, 83% vs. 61% in 5-year-olds, and 81% vs. 70% in 6-year-olds (monolinguals and bilinguals respectively). Given that the data distribution is not near normal for 4- and 5-year-old monolinguals, the comparisons were performed with a Wilcoxon test in these age groups and with a Welch t-test for 6-year-olds. The difference between monolinguals and bilinguals turned out to be significant only in the 4-year-old groups ($W = 190.5$, $p = 0.006$**).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 47. BareNs in Russian / Information status ACCESSIBLE

As for developmental patterns, monolingual children show no variation across age groups: they use an almost equal number of bareNs in all age groups, 82%, 83%, and 81% for 4-, 5-, and 6-year-olds respectively, whereas bilingual children increase the use of bareNs with age, from 50% at age 4 to 61% at age 5 and 70% at age 6, continuously getting closer to the monolingual performance by age 6. From a statistical point of view, however, there is no significant variation across age groups in either sample, based on the results of the Kruskal-Wallis test for the monolingual sample and the one-way ANOVA for the bilingual sample (x^2 (2) = 1.28, p = 0.53 and F (2, 57) = 2.56, p = 0.09 respectively). Thus, although there is a clear tendency towards a more extensive use of bareNs that increases with age in bilinguals, the increase in not strong enough to be considered a developmental shift between age 4 and 6. Also, a two-factorial analysis of variance (two-way ANOVA) could not be performed due to the missing precondition regarding data distribution in the monolingual sample.

Thus, despite differences in each sample in the developmental patterns, it cannot be confirmed or disproved statistically that the development over age is different. Given that there is a significant difference only in the comparison between 4-year-old monolinguals and bilinguals, the overall results indicate similar performance in bilinguals and monolinguals for 5- and 6-year-olds.

Two examples demonstrate the typical use of bareNs for reintroducing referents:

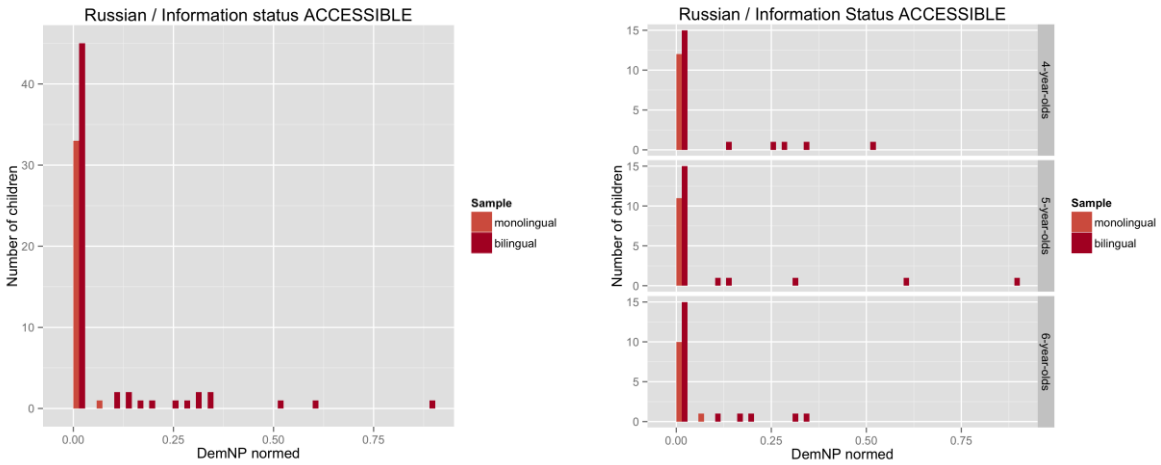
(115) *Sobaka* *bezhit* *za* *koshkoj*. (CAT, mr0169, 4;2)
dog$_{F\text{-}SG:NOM}$ run$_{IPFV\text{-}PRS:3SG}$ after cat$_{F\text{-}SG:INS}$
(The) dog is running after (the) cat.
sobaka|T1-bareN-S-NOM-Mn-PreV-Giv:C1:DO:bareN-M-Ref=dog
za koshkoj|T2-bareN-PO-INSTR-Mn-PostV-Acc:C3:S:bareN-RI-Ref=cat

(116) *Potom &voro voron brosil rybu.* (FOX, br036, 6;7)
then raven$_{M\text{-}SG:NOM}$ drop$_{PFV\text{-}PST:SG:M}$ fish$_{F\text{-}SG:ACC}$
Then (the) raven dropped (the) fish.
voron|T1-bareN-S-NOM-Mn-PreV-Acc:C3:S:bareN-RI-Ref=bird1
rybu|T2-bareN-DO-ACC-Mn-PostV-Acc:C3:DO:bareN-RI-Ref=fish

It should be noted that in (115) only the second referent (the cat) was reintroduced (its antecedent is mentioned more than 2 clauses back), whereas the first referent (the dog) is maintained (its antecedent is in the previous clause). It is often the case that referents with different information statuses are used in the same sentence. In (116) both referents have the information status *accessible* and have been reintroduced into the narration (their antecedents are mentioned more than 2 clauses back).

DemNPs

DemNPs are used almost exclusively by bilingual children: 8% (n=15 out of 60) in bilinguals and only 2% (n=1 out of 35) in monolinguals out of all referential expressions with the information status *accessible* (see Figure 48a). Given the low numbers, the Fisher test was performed in order to statistically compare bilingual and monolingual performance. The difference between the samples turned out to be significant (p = 0.004**).



a. Whole samples b. Age groups

Figure 48. DemNPs in Russian / Information status ACCESSIBLE

Looking at each age group separately (see Figure 48b), one can see that demNPs are used by bilinguals in all age groups (7%, 10%, and 6%, out of all referential expressions with the information status *accessible,* for 4-, 5-, and 6-year-olds respectively, n=5 in each age group), whereas in monolinguals they are used only by one 6-year-old monolingual child (1%). This time, the difference between bilingual and monolingual children could not be confirmed statistically – the results of the Fisher test are not significant for either age group (p = 0.13, p = 0.13, p = 0.38 for 4-, 5, and 6-year-olds respectively). It does not mean,

however, that the difference is not possible. The data size in each age group is just too small to produce significant results. With a bigger data size, the results would likely be different, as is the case for the comparison of the whole samples. No further statistical analysis with regard to the comparisons across age groups was done due to a small number of observations per age group. It can be presumed that there is not enough evidence for any significant results.

The results for the comparison between the whole samples show different performance in bilinguals and monolinguals (bilinguals use significantly more demNPs than monolinguals), but the comparisons within age groups indicate similar performance in both samples, or better said, it could not be proven that the performance is different. It could be observed, however, that in general, bilingual children of all age groups use demNPs to almost the same degree, whereas in monolinguals there is only one 6-year-old child who uses this expression.

The typical use of demNPs for reintroducing referents is demonstrated in the following examples:

(117) *A potom e~ta ptica zabrala*
and then this$_{F\text{-}SG:NOM}$ bird$_{F\text{-}SG:NOM}$ take$_{PFV\text{-}PST:SG:F}$
e~tu kostochku ot mjasa. (FOX, br022, 4;9)
this$_{F\text{-}SG:ACC}$ bone$_{F\text{-}SG:ACC}$ from meat$_{N\text{-}SG:GEN}$
Then this bird took this meat bone.
e~ta ptica|T1-demNP-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=bird1
e~tu kostochku|T2-demNP-DO-ACC-Mn-PostV-Acc:C3:S:DEM-RI-Ref=fish

(118) *Ona opjat' e~tu rybu xotela*. (FOX, br016, 5;6)
she$_{F\text{-}3SG:NOM}$ again this$_{F\text{-}SG:ACC}$ fish$_{F\text{-}SG:ACC}$ want$_{IPFV\text{-}PST:SG:F}$
She wanted this fish again.
ona|T1-Pro-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=bird1
e~tu rybu|T2-DemNP-DO-ACC-Mn-PreV-Acc:C3:DO:PRO-RI-Ref=fish

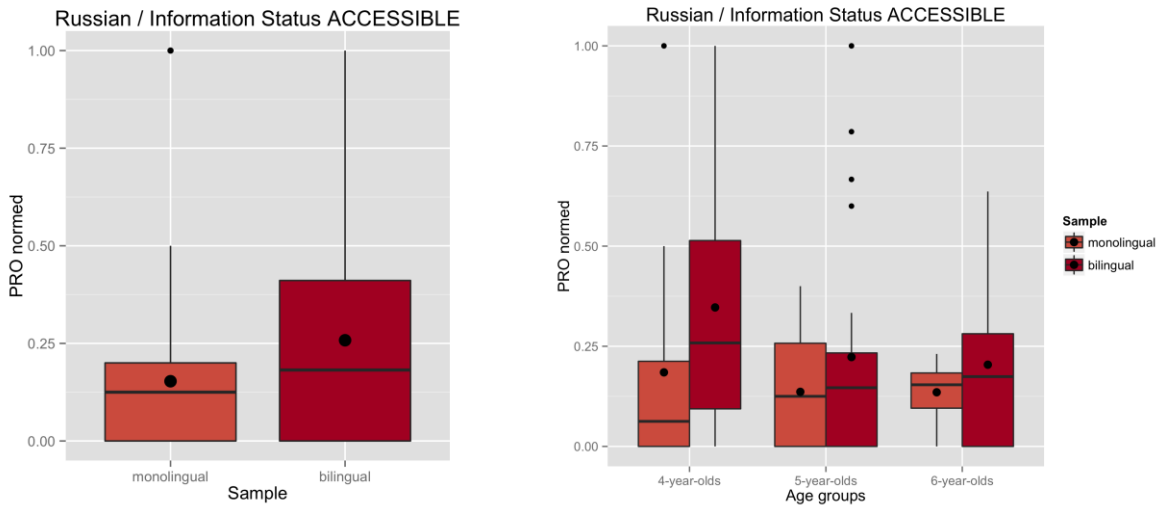
(119) *I 0word-s xotela e~tu ptichku s"est'*. (FOX, br016, 5;6)
and want$_{IPFV\text{-}PST:SG:F}$ this$_{F\text{-}SG:ACC}$ bird$_{F\text{-}SG:ACC}$ eat$_{INF\text{-}PFV}$
And (she) wanted to eat this bird.
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:bareN-M-Ref=fox
e~tu ptichku|T2-DemNP-DO-ACC-Mn-PostV-Acc:C2:S:0PRO-RI-Ref=bird1

In all three examples, although they are from the same story (FOX), there is no preference for a specific discourse referent or syntactic environment. Examples (118) and (119) are from the same child who uses demNPs for different protagonists. In example (117) both referents, the bird and the fish (in this particular case named *meat bone*), are referred to with demNPs. It should be added, however, that in this example the first demNP (this bird) is not used for reintroducing the referent but for maintaining it. Only the fish is reintroduced, having been mentioned more than 2 clauses back. The use of demNPs in the presented example underlines that children do not have a specific preference for demNPs with regard to the information status. They use demNPs to both maintain and reintroduce referents and even to

introduce referents into the narration. This was shown in the previous sections. At the same time, the child refers to the fish as *meat* or *meat bone* through the whole story, so the choice of the referential expression is also not due to lexical choice.

PROs

The proportions of PROs used for reintroducing referents are rather different in the monolingual and bilingual samples: 15% in monolinguals and 26% in bilinguals, out of all referential expressions with the information status *accessible* (see Figure 49a). Given that the data are not normally distributed, the comparison between the samples was performed with a Wilcoxon test. The result could not confirm the difference statistically (W = 810, p = 0.09).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 49. PROs in Russian / Information status ACCESSIBLE

With regard to the comparisons within age groups, the differences between monolinguals and bilinguals appear to be considerable in all age groups, whereas monolinguals always use fewer PROs than bilinguals: 18% vs. 35% in 4-year-olds, 14% vs. 22% in 5-year-olds, and 14% vs. 20% in 6-year-olds (see Figure 49b). However, based on the results of the Wilcoxon test, none of the differences turned out to be significant, not even for 4-year-olds, where the difference seems to be especially pronounced (W = 77, p = 0.09; W = 100.5, p = 0.70; and W = 94.5, p = 0.53 for 4-, 5-, and 6-year-olds respectively).

As for developmental patterns, monolingual children use a similar number of PROs independently of age: 18%, 14%, and 14% in 4-, 5-, and 6-year-olds respectively. Bilingual children continuously decrease the number of PROs, from 35% at age 4 to 22% at age 5 and 20% at age 6. However, the difference across age groups could not be confirmed statistically for either sample. The analysis of variance in each sample was performed with a Kruskal-

Wallis test (x^2 (2) = 0.46, p = 0.79 and x^2 (2) = 2.89, p = 0.24 for monolingual and bilingual samples respectively). Thus, there are no significant developmental changes in either sample. A two-factorial analysis of variance was not performed due to the data distribution.

Since none of the differences is statistically significant, it can overall be stated that the performance and development over age are not different enough in the analyzed samples.

The examples below demonstrate the different use of PROs for reintroducing referents:

(120) *Ona [:lisa]* *vzjala* *rybu*. (FOX, mr033, 4;08)
she$_{F\text{-}3SG:NOM}$ take$_{PFV\text{-}PST:SG:F}$ fish
She took (the) fish.
ona|T1-PRO-S-NOM-Mn-PreV-Acc:C2:S:bareN-RI-Ref=fox
rybu|T2-bareN-DO-ACC-Mn-PostV-Giv:C1:DO:0PRO-M-Ref=fish

(121) *A ona xotela wegfliegen@csr*. (CAT, br054, 5;11)
and she$_{F\text{-}3SG:NOM}$ want$_{IPFV\text{-}PST:SG:F}$ fly.away$_{INF\text{-}PFV}$
And she wanted to fly away.
ona|T1-PRO-S-NOM-Mn-PreV-Acc:C2:S:PRO-RI-Ref=m-bird

(122) *I tam ona uzhe kushat' prinesla*. (CAT, br053, 5;11)
and there she$_{F\text{-}3SG:NOM}$ already eat$_{INF\text{-}IPFV}$ bring$_{PFV\text{-}PST:SG:F}$
And there she already brought (something) to eat.
ona|T-PRO-S-NOM-Mn-PreV-Acc:C3:S:0PRO-RI-Ref=m-bird

In example (120) the use of PROs is ambiguous because, if taken out of the story flow, it could either refer to the fox or the bird. That is why the transcriber even explicitly marked to which protagonist the reference was made (the fox). It should be mentioned that in this example the referential distance to the antecedent is not very big, having just been mentioned in the second clause back. However, as there was an interruption in the reference maintenance, it must be reintroduced. In this particular case, the better referential choice would be a bareN.

Examples (121) and (122) show, on the other hand, that sometimes the use of PROs is also legitimated for reintroducing referents, since the referents can be clearly identified. In (121) the only flying protagonist of the story is the bird. In (122) it is also the bird who brings something to eat, which is clear from the context of the story. Therefore, technically, there is no explicit need to reintroduce these referents by bareNs, at least from the child's point of view. At the same time, as the previous mention of these referents occurs several clauses back, it takes some effort for a listener to establish reference to the respective protagonists. This is exacerbated if in between the same pronouns were used for referring to other protagonists. Thus, bareNs would be a better choice for reintroducing referents in these cases as well.

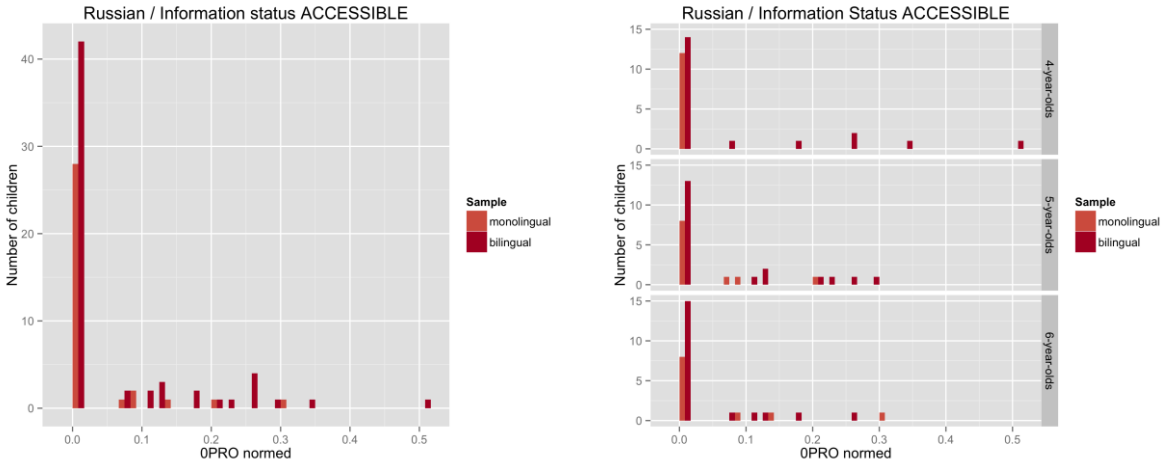
The next example (123) shows that sometimes children themselves notice the inappropriate choice of a PRO and clarify it at once:

(123) *On, Fuchs@csr, m, xotel ego@errpro pojmat'*
he$_{M\text{-}3SG:NOM}$ fox$_{F\text{-}SG:NOM}$ want$_{IPFV\text{-}PST:SG:M}$ he$_{M\text{-}3SG:ACC}$ catch$_{INF\text{-}PFV}$
zubami svoimi. (FOX, br083, 6;11)
tooth$_{M\text{-}PL:INS}$ his$_{M\text{-}PL:INS}$
He, (the) fox, wanted to catch him with his teeth.
on|T1-PRO-S-NOM-Mn-PreV-Acc:C3:S:PRO-RI-Ref=fox
Fuchs|TD-bareN-S2-NOM-Mn-Vfin:RD-Acc:C3:S:PRO-RI-Ref=fox
ego|T2-PRO-DO-ACC-Mn-PostV-Giv:C1:S:bareN-M-Ref=fish

The child started the sentence with a PRO and immediately switched to a bareN to establish a better reference to the protagonist (switching to another language is irrelevant here). In this particular case, the antecedent was mentioned more than 3 clauses back and had to be reintroduced by a bareN at best. The fact that some children correct themselves underlines their pragmatic competence and their ability to consider the listener's perspective. However, these kinds of "corrections" are rare in the analyzed data.

0PROs

Occasionally, children even use 0PROs in contexts where the referents should be reintroduced. As can be seen from Figure 50a, both bilinguals and monolinguals use 0PROs to a rather low degree: 6% (n=18 out of 60) and 3% (n=6 out of 35) respectively, out of all referential expressions with the information status *accessible*. Given the small number of observations, the Fisher test was performed for the statistical comparison of the samples. The difference could not be confirmed (p = 0.22).



a. Whole samples b. Age groups

Figure 50. 0PROs in Russian / Information status ACCESSIBLE

In the within-age-group comparisons (see Figure 50b), it can be observed that in 4-year-olds it is only bilingual children (n=6), who use 0PROs (8%), in 5- and 6-year-olds it is both bilingual and monolingual children: 7% (n=7) vs. 3% (n=3) and 4% (n=5) vs. 5% (n=3) are

used by bilinguals and monolinguals respectively. However, the differences are not significant in either age group, not even in 4-year-olds (Fisher test, p = 0.061, p = 0.7, and p = 1 for 4-, 5-, and 6-year-olds respectively). Again, however, this is not surprising, as the number of observations is too low to obtain significant results. No further statistical tests regarding the use of 0PROs across age groups were performed, given the small data size in each age group. Overall, the results indicate similar performance in bilinguals and monolinguals.

The examples below demonstrate the rare use of 0PROs in different contexts:

(124) *I potom vorona brosila 0word-o*. (FOX, mr068_new; 6;1)
and then crow$_{F\text{-}SG:NOM}$ throw$_{PFV\text{-}PST:SG:F}$
And then (the) crow threw (it).
vorona|T1-bareN-S-NOM-Mn-PreV-Giv:C1:S:0PRO-M-Ref=bird1
word|T2-0PRO-DO-Mn-Vfin-Acc:C2:DO:bareN-RI-Ref=fish

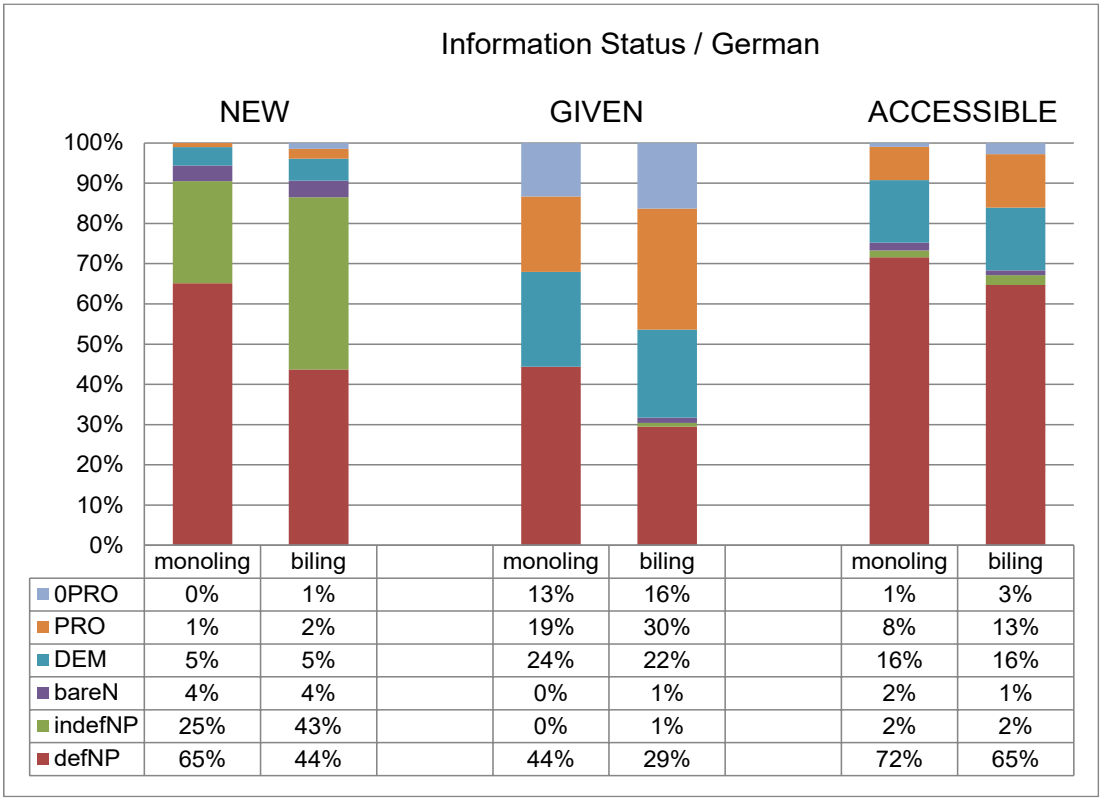
(125) *Potom 0word-s davaj gonjat'sja*. (CAT, br075, 4;10)
then let's chase.each.other$_{INF\text{-}IPFV}$
Then (they) began to chase each other.
word|T-0PRO-S-Mn-Vfin-Acc:C2:S:bareN-RI-Ref=dog
word|T-0PRO-S-Mn-Vfin-Acc:C2:DO:0PRO-RI-Ref=cat

(126) *Potom 0word-s xotela ptichku s''est'.* (FOX, br004, 5;7)
then want$_{IPFV\text{-}PST:SG:F}$ bird$_{F\text{-}SG:ACC}$ eat$_{INF\text{-}PFV}$
Then (she) wanted to eat (the) bird up.
word|T1-0PRO-S-Mn-Vfin-Acc:C2:S:bareN-RI-Ref=fox
ptichku|T2-bareN-DO-ACC-Mn-PostV-Giv:C1:S:bareN-M-Ref=bird1

In example (124) the object referring to the fish (mentioned two clauses back) is omitted, whereas in the two other examples what is omitted are the subjects of the clauses that simultaneously refer to the dog and the cat in (125) and to the fox in (126). In all cases, it is clear from the story context which protagonists were meant. However, similarly to the use of PROs for reintroducing referents, the more explicit reference would be better for the listener's immediate reference establishment due to the disruption in reference maintenance (the previous mentions of the protagonists occurred two clauses back).

7.2.2 German

Figure 51 illustrates the overall distribution of referential expressions in German that are used for introducing, maintaining, and reintroducing discourse referents according to their information status.



	monoling	biling		monoling	biling		monoling	biling
0PRO	0%	1%		13%	16%		1%	3%
PRO	1%	2%		19%	30%		8%	13%
DEM	5%	5%		24%	22%		16%	16%
bareN	4%	4%		0%	1%		2%	1%
indefNP	25%	43%		0%	1%		2%	2%
defNP	65%	44%		44%	29%		72%	65%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 51. Types of referential expressions in German in monolingual and bilingual children: distribution by information status (NEW, GIVEN, ACCESSIBLE) and sample (in %)

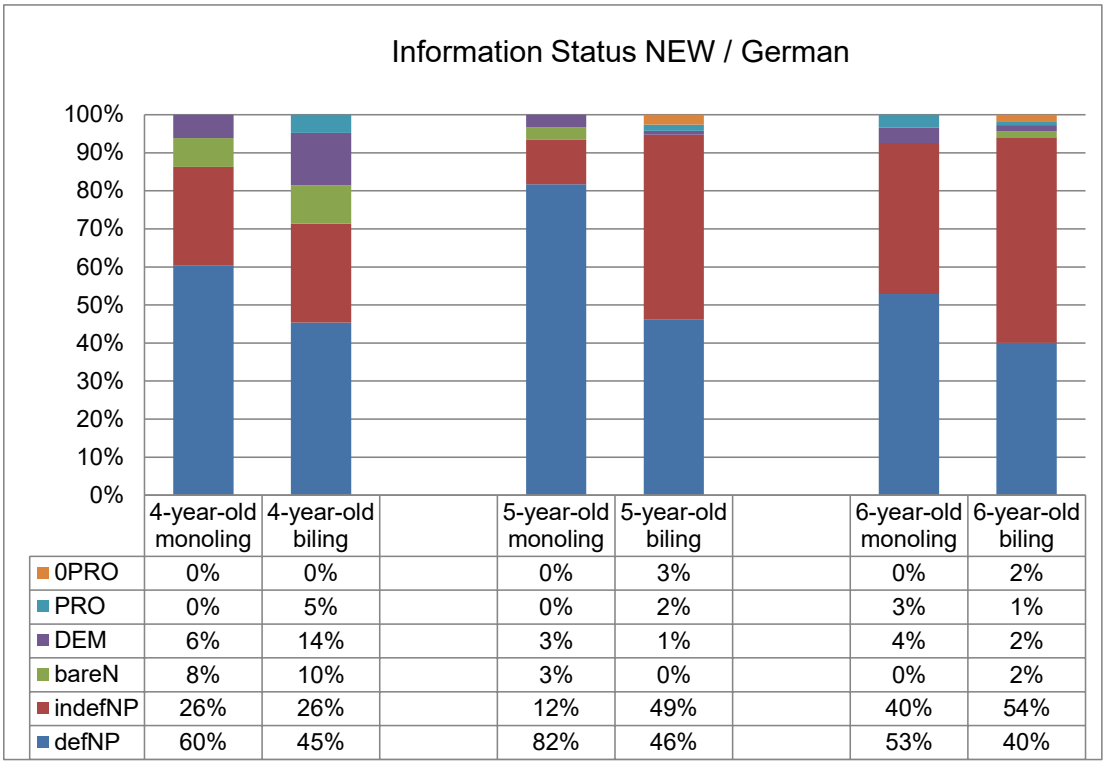
Similarly to Russian, the differences in the distribution of referential types are visible in all categories and in both samples. Children predominantly use nominal expressions (definite and indefinite) for introducing new referents (information status *new)*: 90% in monolinguals and 87% in bilinguals, whereas in bilinguals the proportion of indefinite NPs is higher than in monolinguals (43% vs. 25%). For maintaining referents (information status *given)* children use more pronominal than nominal expressions: 56% in monolinguals and 68% in bilinguals. At the same time, the distribution between different types of pronominal expressions, DEMs, PROs, and 0PROs, is quite comparable: 24%, 19%, and 13% in monolinguals and 22%, 30%, and 16% in bilinguals respectively. Furthermore, defNPs seem to be a good alternative to the pronominal expressions for children of both samples, used more frequently by monolinguals than by bilinguals (44% vs. 31% respectively, including indefNPs and bareNs, which are also occasionally produced by bilingual children). For reintroducing referents (information status *accessible)* children use predominantly nominal (definite) expressions (72% in monolinguals and 65% in bilinguals); occasionally indefNPs and bareNs are used in both samples as well (3-4%). Pronominal expressions are used to a much lower degree than nominal expressions in both samples, 25% in monolinguals vs. 32% in bilinguals, whereas the number of 0PROs is minimal (in contrast to the number used for reference maintenance).

The overall distribution is therefore compatible with the main hypothesis on the different distribution of referential expressions used for introducing, maintaining, and reintroducing referents into the narration depending on the referent's information status.

Many similarities as well as differences between the monolingual and bilingual samples could be observed in the overall distribution, e.g., in the use of defNPs and indefNPs for introducing referents or in the use of PROs and defNPs for maintaining and reintroducing referents. Subsequent sections present detailed analyses of the pragmatic performance and pragmatic development in the use of reference over age for different types of referential expressions.

7.2.2.1 Introduction of discourse referents (information status *new*)

For introducing new referents in German, children of both samples predominantly use nominal referential expressions, defNPs, indefNPs, and occasionally bareNs, in all age groups, ranging between 93% and 97% in monolinguals and between 81% and 96% in bilinguals (see Figure 52).



	4-year-old monoling	4-year-old biling	5-year-old monoling	5-year-old biling	6-year-old monoling	6-year-old biling
0PRO	0%	0%	0%	3%	0%	2%
PRO	0%	5%	0%	2%	3%	1%
DEM	6%	14%	3%	1%	4%	2%
bareN	8%	10%	3%	0%	0%	2%
indefNP	26%	26%	12%	49%	40%	54%
defNP	60%	45%	82%	46%	53%	40%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 52. Types of referential expressions with information status NEW in German in monolingual and bilingual children: distribution by sample and age group (in %)

It can be observed that monolingual children clearly give preference to defNPs at age 4 (60%) and 5 (82%), strongly reducing the number of indefNPs from 26% at age 4 to 12% at age 5. In bilingual children, on the contrary, the use of defNPs stays constant in all age

groups (ranging between 40% and 46%). The use of indefNPs increases from 28% at age 4 to 48% at age 5. It stays at the same level (49%) at age 6. At the same time, bilinguals use more indefNPs than defNPs from age 5 on, whereas in monolinguals defNPs still dominate in all age groups. BareNs, which are not appropriate from the grammatical point of view, are used by children of both samples, mostly at age 4 (8% and 10% in monolinguals and bilinguals respectively). At age 5 and 6, their use is minimal (0-3% in monolinguals and 0-2% in bilinguals). The use of pronominal referential expressions, DEMs, PROs, and even 0PROs, for introducing new referents is rather restricted, ranging between 3% and 7% in monolinguals and between 5% and 19% in bilinguals, with the highest number of pronominal expressions being used by 4-year-old bilingual children (19%). 0PROs are used only occasionally by 5- and 6-year-old bilingual children (2-3%). The use of 0PROs indicates that new referents are not introduced at all, though these cases are rare.

Detailed statistical analyses for each referential type used for introducing new referents in German are presented below.

DefNPs

The most frequent type of referential expression used for introducing new referents in both samples in German is defNP: 65% in monolinguals and 44% in bilinguals, out of all referential expressions with the information status *new* (see Figure 53a). Given that the distribution of the data is near normal, the statistical comparison between the samples was done using a Welch t-test. The difference turned out to be significant with a high degree of confidence (t (68.56) = 3.50, p < 0.001***).

*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 53. DefNPs in German / Information status NEW

In the within-age–group comparisons (see Figure 53b), the difference between bilinguals and monolinguals is observable in all age groups. Monolinguals consistently use more defNPs than bilinguals: 60% vs. 45% in 4-year-olds, 82% vs. 46% in 5-year-olds, and 53% vs. 40% in 6-year-olds. However, the difference could only be statistically confirmed for the 5-year-old group (Wilcoxon test, $W = 183.5$, $p = 0.002$**). In other age groups the difference turned out to be insignificant (Welch t-test, $t(22.20) = 1.38$, $p = 0.18$ and $t(17.63) = 1.24$, $p = 0.23$ for 4- and 6-year-olds respectively).

With regard to developmental patterns in both samples, it can be observed that for bilinguals the number of defNPs remains stable over age (45%, 46%, 40% in 4-, 5-, and 6-year-olds respectively) with a slight decrease by age 6, whereas in monolinguals it increases first from 60% at age 4 to 82% at age 5 and then decreases again to 53% at age 6. In bilinguals, the difference across age groups is obviously not statistically significant (one-way ANOVA, $F(2, 57) = 0.25$, $p = 0.78$), whereas in monolinguals the variance across age groups is significant (Kruskal-Wallis test, $x^2(2) = 7.52$, $p = 0.023$*). The post-hoc tests confirmed the difference only for the comparison between 5- and 6-year-olds (pairwise Wilcoxon tests, $p = 0.025$*) but not between 4- and 5-year-olds or between 4- and 6-year-olds ($p = 0.14$ and $p = 0.39$ respectively). Thus, the significant developmental shift towards the lower use of defNPs occurs between age 5 and 6 in monolinguals. At the same time, already at age 4, bilingual children use far fewer defNPs. A two-factorial analysis of variance (with age group and sample as factors) could not be performed, as one of the preconditions bound to the data distribution is not fulfilled.

Overall, based on the comparisons within and across age groups, there are significant differences in the comparison of the whole samples and between 5-year-old bilinguals and monolinguals as well as in the developmental patterns (given that there is no change in bilinguals across age groups but a significant decrease in the use of defNPs between age 5 and 6 in monolinguals). These results indicate different performance and development of bilingual and monolingual children in the use of defNPs for introducing new referents in German. This finding is discussed in more detail in the summary of results.

The most typical examples of defNPs used for introducing new referents are given below:

(127) *Da sind die kleinen Kueken* (CAT, md021, 4;6)
there be$_{PRS:3PL}$ the$_{DEF-N-PL:NOM}$ small chick$_{N-PL:NOM}$
There are the small chicks.
die kleinen kueken|T-defNP-S-NOM-Mn-PostV:MF-New-FM-Ref=b-birds

(128) Is(t) [2x] der *grosse Vogel da*. (FOX, bd005, 5;4)
be$_{PRS:3SG}$ the$_{DEF-M-SG:NOM}$ big bird$_{M-SG:NOM}$ there
The big bird is there.
der grosse vogel|T-defNP-S-NOM-Mn-PostV:MF-New-FM-Ref=m-bird

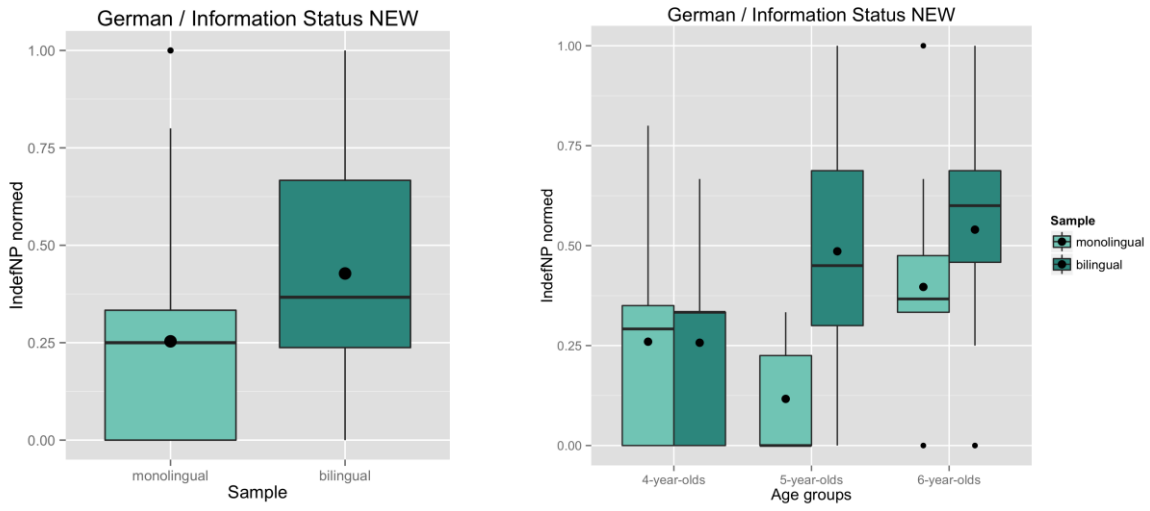
(129) *Da* kommt *die Katze an.* (CAT, md021, 4;6)
there come$_{PRS:3SG}$ the$_{DEF-F-SG:NOM}$ cat$_{F-SG:NOM}$ here
There the cat approaches.
die katze|T-defNP-S-NOM-Mn-PostV:MF-New-FM-Ref=cat

(130) Und *die* *Katze* *geht* *dahin.* (CAT, bd017, 4;8)
and the$_{DEF\text{-}F\text{-}SG:NOM}$ cat$_{F\text{-}SG:NOM}$ go$_{PRS:3SG}$ there
And the cat goes there.
die katze|T-defNP-S-NOM-Mn-PreV:PF-New-FM-Ref=cat

In (127) and (128) the protagonists are presented in a sentence without a lexical verb. This type of referent introduction is comparable to verbless sentences in Russian, where “to be” constructions are not used in present tense. In (129) and (130) the same protagonist (cat) is presented in sentences containing lexical verbs. This type of referent introduction is also used often in both monolingual and bilingual samples.

IndefNPs

Although the indefNP – the target type of referential expression for introducing new referents in German – is not the most frequent type among monolingual and bilingual children, its proportional use is striking: 25% in monolinguals and 43% in bilinguals, out of all referential expressions with the information status *new* (see Figure 54a). It seems that bilingual children use indefNPs much more often than monolingual children. In support of this, the data display a good approximation to the normal distribution, indicating a rather systematic use of indefNPs in the bilingual sample taken as a whole. Indeed, the statistical analysis confirms the significance of the difference between the samples (Wilcoxon test, W = 663.5, p = 0.008**).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 54. IndefNPs in German / Information status NEW

Looking at the data distribution within each age group (see Figure 54b), one can observe that whereas in 4-year-olds the data are almost equally (although not normally) distributed

and children of each sample use 26% of indefNPs in the 4-year-old group, the situation changes completely at age 5. The difference between bilinguals and monolinguals in 5-year-olds is extreme, at 49% in bilinguals and 12% in monolinguals, which is also statistically significant (Wilcoxon test, W = 39.5, p = 0.003**). In the 6-year-old group, the difference between bilinguals (54%) and monolinguals (40%) is still present, but it is not statistically significant, based on the results of the Welch t-test (t (18.12) = -1.26, p = 0.22).

With regard to the developmental patterns in the use of indefNPs, one can say that monolingual children do not show a clear developmental pattern. First, they decrease the use of indefNPs at age 5, increasing it again by age 6 (26%, 12%, 40% respectively). Meanwhile, bilingual children continuously increase the use of indefNPs with age, from 26% to 49% at age 5 and 54% by age 6. The analysis of variance across age groups shows that there is a significant difference between age groups in both monolingual and bilingual samples (Kruskal-Wallis test, x^2 (2) = 7.21, p = 0.027* for monolinguals and x^2 (2) = 10.33, p = 0.006** for bilinguals). In monolinguals, it is the difference between the 5- and 6-year-olds and in bilinguals between the 4- and 6-year-olds, as confirmed by the post-hoc tests (pairwise Wilcoxon tests, p = 0.029* for the comparison between 5- and 6-year-old monolinguals and p = 0.004** for the comparison between 4- and 6-year-old bilinguals). Thus, both samples undergo developmental shifts but in different ways. As the data are partially not normally distributed, a two-factorial analysis of variance (interaction between age groups and samples) could not be performed.

Overall, similarly to the use of defNPs, the results indicate significant differences in the comparison of the whole samples and between 5-year-old bilinguals and monolinguals; the comparisons across age groups show significant differences as well, revealing developmental changes in both samples (between age 5 and 6 in monolinguals and age 4 and 5 in bilinguals). The developmental patterns go in opposite directions by age 5 (decreasing in monolinguals and increasing in bilinguals) with a consequent increase in both samples by age 6 (significant in monolinguals), rendering them more different than similar.

At the same time, the fact that 4-year-olds already use 26% of indefNPs in each sample should be carefully interpreted. The choice of an indefNP for introducing new referents does not mean *per se* that children have already fully understood the introductory function of this referential expression, since, at this age, they still often introduce protagonists simply by naming them instead of introducing them with complete sentences.

Examples (131) to (134) illustrate the development in the use of indefNPs for introducing referents in monolingual and bilingual children:

(131) *Ein* *Vogel*. (CAT, md026; 4;8)
a$_{\text{INDF-M-SG:NOM}}$ bird$_{\text{M-SG:NOM}}$
(There is) a bird.
ein vogel|T-indefNP-S-NOM-Mn-0V-New-FM-Ref=m-bird

(132) *Eine Mama und [2x] kleine hm@i Voegel*,
a$_{INDF-F-SG:NOM}$ mom$_{F-SG:NOM}$ and small bird$_{M-PL:NOM}$
kleine Babys Voegel [*][: Voegelchen]. (CAT, bd037; 4;5)
small baby-bird$_{M-PL:NOM}$
(There are) a *mom and small birds, small baby-birds.*
eine Mama|T-indefNP-S-NOM-Mn-0V-New-FM-Ref=m-bird
kleine Babys Voegel|T-indefNP-S-NOM-Mn-0V-New-FM-Ref=b-birds

(133) *Da kommt ein Hund an.* (CAT, md026, 4;8)
there come$_{PRS:3SG}$ a$_{INDF-M-SG:NOM}$ dog$_{M-SG:NOM}$ here
There a dog is approaching.
ein hund|T-indefNP-S-NOM-Mn-PostV:MF-New-FM-Ref=dog

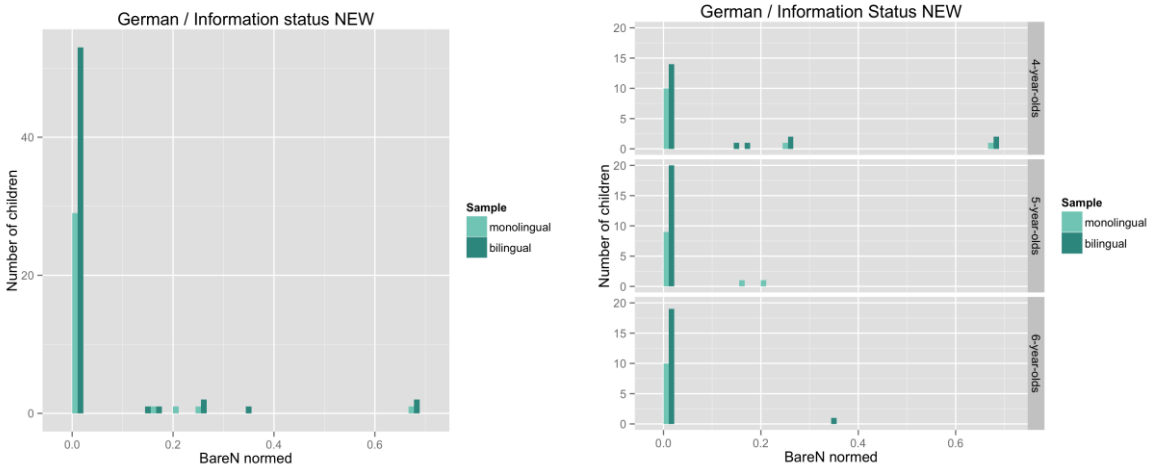
(134) *Aber dann war da eine Katze*. (CAT, bd018, 5;9)
but then be$_{PST:3SG}$ there a$_{INDF-F-SG:NOM}$ cat$_{F-SG:NOM}$
But then there was a cat.
eine Katze|T-indefNP-S-NOM-Mn-PostV:MF-New-FM-Ref=cat

Whereas in the first two examples children only name a story character, in the next two examples the characters are properly introduced with a complete sentence. Although 4-year-old children can already introduce the story protagonists properly, the shift from naming to introducing characters seems to happen between age 4 and 5, as was shown in (133). This is when the majority of children introduce new characters using complete sentences instead of just naming them. For example, in the data of all 20 5-year-old bilingual children there was only one single occurrence of naming. At the same time, it does not mean that all children always use indefNPs for this purpose – many children still prefer to use defNPs instead of indefNPs in the same context, as has been shown in the monolingual data. These findings are discussed in more detail in the summary of results.

BareNs

The use of bareNs for introducing new referents seems to be occasional at most and is not restricted to the bilingual sample, as shown in Figure 55a: 4% in each sample are bareNs, out of all referential expressions with the information status *new* (n=7 out of 60 bilinguals and n=4 out of 33 monolinguals). Clearly, there is no statistically significant difference between the samples taken as a whole (Fisher test, p = 1).

However, when looking at age groups separately, it becomes clear that the most bareNs are used by the 4-year-old group, but with different frequency in the samples (see Figure 55b): 8% in monolinguals (n=2) and 10% in bilinguals (n=6). In contrast to this, it is only 3% in 5-year-old monolinguals (n=2) and 2% in 6-year-old bilinguals (n=1). The Fisher test performed for each age group confirms that there is no significant difference between bilingual and monolingual children in either age group. Thus, the results indicate similar performance in monolinguals and bilinguals and demonstrate that the use of bareNs is mainly restricted to the youngest age group in both samples.



a. Whole samples b. Age groups

Figure 55. BareNs in German / Information status NEW

The examples below demonstrate a rare use of bareNs for introducing referents into the narration by both bilingual and monolingual children:

(135) *0word-d Fisch*. (FOX, md119, 4;1)
fish$_{M\text{-}SG:NOM}$
(*A/the) fish.*
fisch|T-bareN-S-NOM-Mn-0V-New-FM-Ref=fish

(136) *0word-d Vogel holt sich den Fisch*. (FOX, bd077, 6;8)
bird$_{M\text{-}SG:NOM}$ get$_{PRS:3SG}$ himself the$_{DEF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$
(*A/the) bird gets the fish.*
Vogel|T1-bareN-S-NOM-Mn-PreV:PF-New-FM-Ref=bird1
den Fisch|T2-defNP-DO-ACC-Mn-PostV:MF-New-FM-Ref=fish

In (135) a referent is simply named by a bareN, whereas in (136) a bareN is part of a sentence where a referent is introduced without an article. Although it might seem that only bilingual children use bareNs in this way, at least for introducing referents, this is not the case. Monolingual children also occasionally use bareNs in the same contexts. As stated above, there is no evidence for a statistical difference between monolingual and bilingual children in any age group or in the samples taken as a whole.

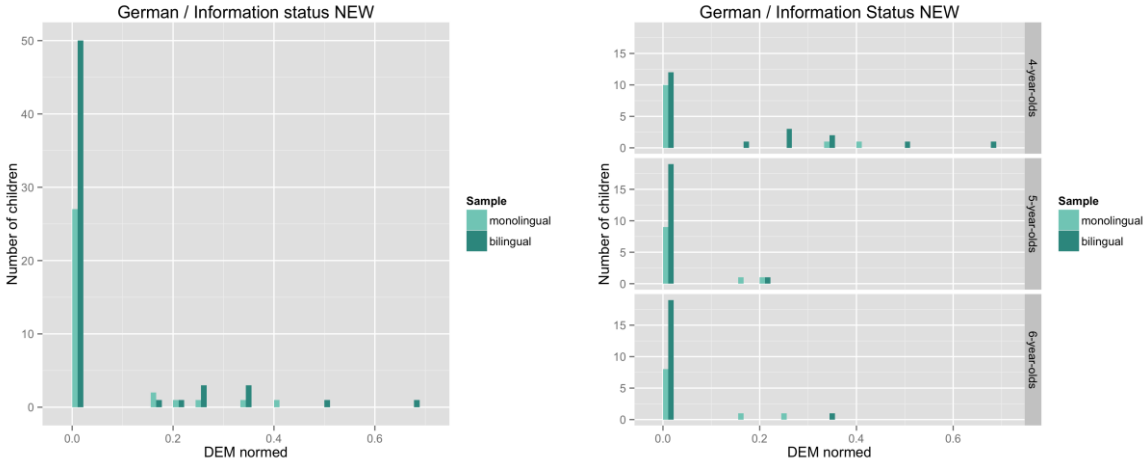
DEMs

DEM is not a typical referential expression for introducing new referents, however, its use cannot be disregarded: children from both samples use it equally for up to 5%, out of all referential expressions with the information status *new* (see Figure 56a). In total, DEMs are used with varying frequency by 6 monolinguals (out of 33) and 10 bilinguals (out of 60).

Looking at the age groups separately (see Figure 56b), one can see that DEMs are used mostly by children of the youngest age group, especially bilinguals: 6% (n=2) vs. 14% (n=8)

in 4-year-olds, 3% (n=2) vs. 1% (n=1) in 5-year-olds, and 4% (n=2) vs. 2% (n=1) in 6-year-olds, monolinguals and bilinguals respectively. However, based on the results of the Fisher test, the difference between monolingual and bilingual children in the use of DEMs is not statistically significant in either age group.

At the same time, there is an important decrease in the use of DEMs in bilinguals: from 14% at age 4 to 1% at age 5 and 2% at age 6. The analysis of variance across age groups showed the difference to be significant (Kruskal-Wallis test, x^2 (2) = 11.78, p = 0.003**). The post-hoc tests confirmed the difference for the comparisons of 4-5-year-olds and 4-6-year-olds (pairwise Wilcoxon tests, same p-value p = 0.022* in both comparisons). In the monolingual sample, the data size is too small to be analyzed for variance across age groups. For the same reason, no two-factorial analysis was performed.



a. Whole samples b. Age groups

Figure 56. DEMs in German / Information status NEW

Overall, the results indicate similar performance in the monolingual and bilingual samples. Furthermore, the developmental patterns head in the same direction in both samples, although due to a significant decrease of DEMs by age 5 the pattern is more pronounced in the bilingual sample.

The examples below illustrate the use of DEMs in bilingual and monolingual children:

(137) *Zuerst ist die [= Vogelmutter] bei den Kindern.* (CAT, md035, 5;6)
At.first be$_{PRS:3SG}$ she$_{DEM-F:SG:NOM}$ with the$_{DEF-N-PL:DAT}$ child$_{N-PL:DAT}$
At first she is with the children.
die|T1-DEM-S-NOM-Mn-PostV:MF-New-FM-Ref=m-bird
bei den kindern|T2-defNP-PO-DAT-Mn-PostV:MF-New-FM-Ref=b-birds

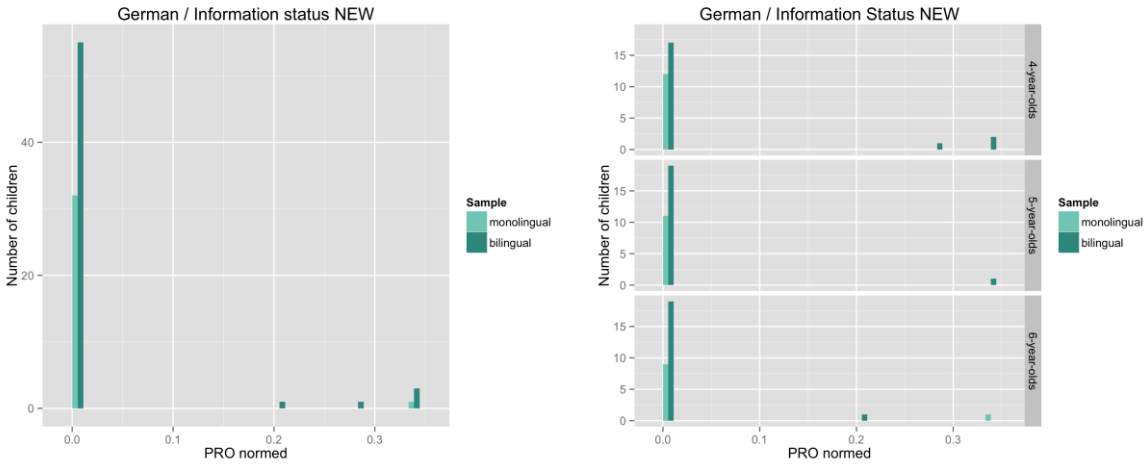
(138) *Zuerst der moechte die fress(e)n.* (FOX, bd011, 4;2)
At.first he$_{DEM-M:SG:NOM}$ would.like$_{SBJV-PRS:3SG}$ she$_{DEM-F:SG:ACC}$ eat$_{INF}$
At first, he would like to eat it.
der|T1-DEM-S-NOM-Mn-PreV:MF-New-FM-Ref=bird1
die|T2-DEM-DO-ACC-Mn-PostV:MF-New-FM-Ref=fish

In these examples, children introduce different protagonists with DEMs, independent of their prominence in the story or their syntactic role in the sentence. In (137) it is the mother-bird, in (138) the bird (subject of the sentence) and the fish (object of the sentence). The reference is not always clear from the context, making visual access to the pictures necessary for the listener in order to establish reference. Such examples demonstrate that children do not always recognize the need for explicit introduction of new referents. At the same time, as was shown above, only 4-year-olds still use DEMs to a certain degree. In 5- and 6-year-olds it is mostly an exception.

PROs

Personal pronoun (PRO), another atypical referential expression for the introduction of referents, is indeed used very rarely, overall only 1% in monolinguals (n=1 out of 33) and 2% in bilinguals (n=5 out of 60) in the whole samples, out of all referential expressions with the information status *new* (see Figure 57a). Based on the Fisher test, the difference is not significant from the statistical point of view (p = 0.42).

Comparing the age groups separately (Figure 57b), one can see that the only child who introduces referents with PROs in the monolingual sample is a 6-year-old (3% out of all referential expressions in this group). In the bilingual sample, children in all age groups use PROs: 5% in 4-year-olds (n=3), 2% in 5-year-olds (n=1), and 1% in 6-year-olds (n=1). Overall, the number of occurrences is low in all age groups and, based on the results of the Fisher test, no significant differences could be found between bilinguals and monolinguals. No statistical analysis was performed across age groups as the data size is too small to expect significant results. Nonetheless, the results indicate similar performance and development in the use of PROs in both samples.



a. Whole samples b. Age groups

Figure 57. PROs in German / Information status NEW

The examples below are typical examples for the introduction of new referents with PROs.

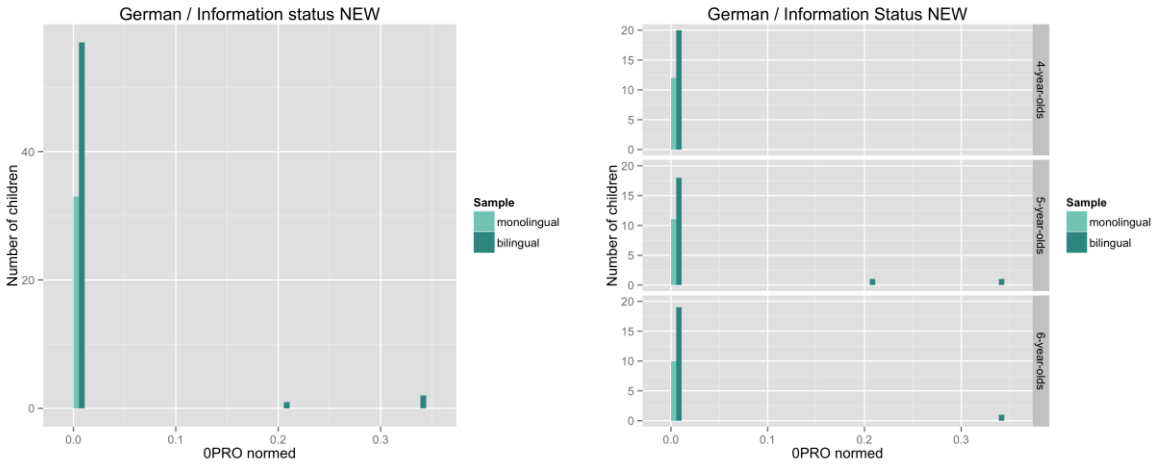
(139) *Da # da sieht er ein [*] [: einen] Fisch.* (FOX, md168_new, 6;0)
there # there see$_{PRS:3SG}$ he$_{M-3SG:NOM}$ a$_{INDF-M-SG:ACC}$ fish$_{M-SG:ACC}$
There he is seeing a fish.
er|T1-PRO-S-NOM-Mn-PostV:MF-New-FM-Ref=bird1
ein Fisch|T2-indefNP-DO-ACC-Mn-PostV:MF-New-FM-Ref=fish

(140) *Er sitzt ## in sein [*] [: seinem] Nest.* (CAT, bd051, 5;10)
he$_{M-3SG:NOM}$ sit$_{PRS:3SG}$ in his$_{M-SG:DAT}$ nest$_{M-SG:DAT}$
He is sitting in his nest.
er|T-PRO-S-NOM-Mn-PreV:PF-New-FM-Ref=m-bird

Similarly to the use of DEMs, there is no notable preference for a certain protagonist. In the comparison between the use of DEMs and PROs it seems that, if used at all, they can be used interchangeably.

0PROs

Occasionally children do not introduce new referents at all. In the analyzed samples, this applies only to bilingual children. However, the number of 0PROs is very low: 1% in the bilingual sample taken as a whole (n=3), 0% in 4-year-olds, 3% in 5-year-olds (n=2), and 1% in 6-year-olds (n=1), considering each age group separately (see Figures 58a and 58b respectively). Overall, there are only 3 occurrences of 0PROs for the introduction of new referents. According to the Fisher test, based on these numbers, no difference between the bilingual and monolingual use of 0PROs for introducing referents could be confirmed for any of the compared groups (whole samples, 5-, and 6-year-olds). Thus, the use of 0PROs can only be seen as exceptional and not as a property of the bilingual sample, as the results indicate similar performance in monolingual and bilingual samples.



a. Whole samples b. Age groups

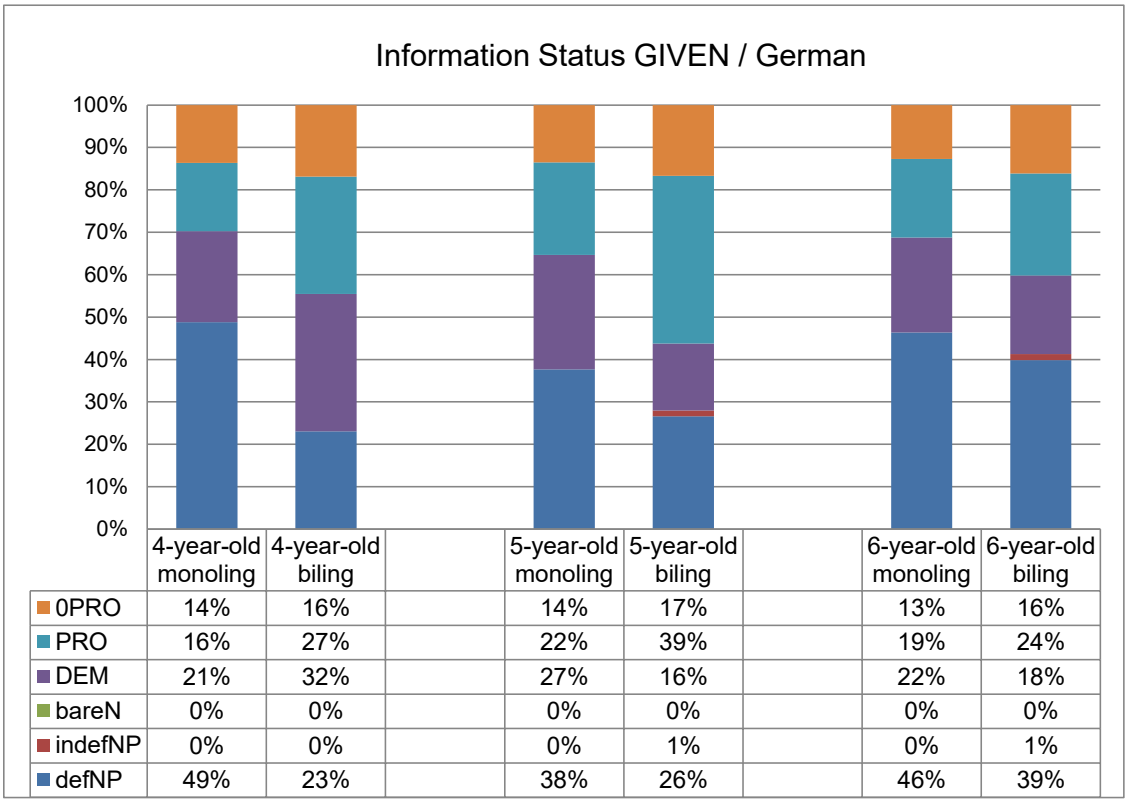
Figure 58. 0PROs in German / Information status NEW

The following example illustrates the extremely rare use of 0PROs in the bilingual sample. It seems that the child has simply forgotten to introduce a protagonist (the fox in this case, who appears in the middle of the story):

(141) *0word-s Holte den Fisch mit den [*] [: dem] Mund*
get$_{PRS:3SG}$ the$_{DEF-M-SG:ACC}$ fish$_{M-SG:ACC}$ with the$_{DEF-M-SG:DAT}$ mouth$_{M-SG:DAT}$
und 0word-s rennt weg. (FOX, bd077, 6;8)
and run$_{PRS:3SG}$ away
(He) gets the fish with the mouth and runs away.
word|T1-0PRO-S-Mn-Vfin-New-FM-Ref=fox
den Fisch|T2-defNP-DO-ACC-Mn-PostV:MF-Giv:C1:DO:defNP-M-Ref=fish
word|T-0PRO-S-Mn-Vfin-Giv:C0:S:0PRO-M-Ref=fox

7.2.2.2 Maintenance of discourse referents (information status *given*)

For maintaining reference in German, both bilingual and monolingual children predominantly use pronominal referential expressions, DEMs, PROs, and 0PROs, in all age groups (see Figure 59): ranging from 51% to 63% in monolinguals and 58% to 75% in bilinguals, whereas the proportions of different types vary across age groups.



	4-year-old monoling	4-year-old biling		5-year-old monoling	5-year-old biling		6-year-old monoling	6-year-old biling
0PRO	14%	16%		14%	17%		13%	16%
PRO	16%	27%		22%	39%		19%	24%
DEM	21%	32%		27%	16%		22%	18%
bareN	0%	0%		0%	0%		0%	0%
indefNP	0%	0%		0%	1%		0%	1%
defNP	49%	23%		38%	26%		46%	39%

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 59. Types of referential expressions with information status GIVEN in German in monolingual and bilingual children: distribution by sample and age group (in %)

At age 4, monolingual and bilingual children use more DEMs than PROs (21% vs. 16% in monolinguals and 32% vs. 27% in bilinguals respectively), at age 5 and 6 monolinguals still use slightly more DEMS than PROs (27% vs. 22% at age 5 and 22% vs. 19% at age 6 respectively). Bilinguals use more PROs than DEMs (39% vs. 16% at age 5 and 24% vs. 18% at age 6 respectively). In the use of 0PROs, children of both samples show similar distribution across age groups, ranging from 13% to 14% in monolinguals and 16% to 17% in bilinguals, with the number of 0PROs always being smaller than the number of explicit pronominal expressions (PROs and DEMs taken together).

At the same time, nominal types of reference are also used for maintaining reference. The proportion of defNPs is rather high in both samples, whereas monolingual children use more defNPs in all age groups: 49%, 38%, and 46% in 4-, 5-, and 6-year-old monolinguals vs. 23%, 26%, and 39% in 4-, 5-, and 6-year-old bilinguals. BareNs are not used for reference maintenance at all and indefNPs are extremely rare: none in the monolingual sample and only 1% in 5- and 6-year-old bilinguals.

Detailed statistical analyses of the most frequent types of referential expressions used for maintaining reference are presented below. The use of DEMs and PROs is analyzed separately but is presented together in the crosslinguistic comparison in section 7.2.3. Due to the very small data size, indefNPs are not analyzed any further.

DefNPs

DefNPs are used by monolingual and bilingual children to a different degree, 44% vs. 29% respectively in the whole samples, out of all referential expressions with the information status *given* (see Figure 60a). The data distribution is near normal in both samples (with one outlier in bilinguals). The difference between the samples is significant (Welch t-test, $t(57.95) = 2.6$, $p = 0.012$*). Thus, monolingual children use significantly more defNPs than bilinguals for maintaining discourse referents.

Comparing the use of defNPs in each age group (see Figure 60b), one can see that the difference is striking only in the youngest age group: 49% in monolinguals vs. 23% in bilinguals in 4-year-olds, 38% vs. 26% in monolingual and bilingual 5-year-olds and 46% vs. 39% in 6-year-olds respectively. Statistically, only the difference in the group of 4-year-olds could be confirmed, based on the results of the Wilcoxon test ($W = 184.5$, $p = 0.012$*). In two other age groups, the difference turned out to be insignificant (Welch t-test was performed here as the data distribution is near normal in both age groups, $t(16.98) = 1.35$, $p = 0.19$ for 5-year-olds; $t(15.83) = 0.64$, $p = 0.53$ for 6-year-olds).

With regard to the developmental patterns in monolingual and bilingual children, it can be seen that with age monolinguals first decrease and then increase the use of defNPs (from 49% at age 4 to 38% at age 5 and to 46% at age 6), whereas bilinguals continuously increase the use of defNPs (from 23% at age 4 to 39% at age 6). However, according to the analysis of variance, the difference between age groups is significant neither in monolinguals (one-way ANOVA, $F(2, 30) = 0.48$, $p = 0.62$), nor in bilinguals (Kruskal-Wallis test, $x^2(2) = 5.94$, $p = 0.051$). A two-factorial analysis of variance (interaction between age groups

and samples) was not performed due to the missing precondition regarding the data distribution. At the same time, given that there are no significant differences in across-age-group comparisons in 5- and 6-year-olds, it can be assumed that the development in monolinguals and bilinguals is quite similar from age 5 onwards.

*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 60. DefNPs in German / Information status GIVEN

The typical use of defNPs in both samples is demonstrated by the following examples:

(142) *Der Fisch faellt runter.* (FOX, md147; 4;4)
the$_{DEF\text{-}M\text{-}SG:NOM}$ fish$_{M\text{-}SG:NOM}$ fall$_{PRS:3SG}$ down
The fish falls down.
der fisch|T-defNP-S-NOM-Mn-PreV:PF-Giv:C1:DO:defNP-M-Ref=fish

(143) *Dann hat der Vogel den Fisch.* (FOX, bd035, 6;5)
then have$_{PRS:3SG}$ the$_{DEF\text{-}M\text{-}SG:NOM}$ bird$_{M\text{-}SG:NOM}$ the$_{DEF\text{-}M\text{-}SG:ACC}$ fish$_{M\text{-}SG:ACC}$
Then the bird has the fish.
der Vogel|T1-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:PRO-M-Ref=bird1
den Fisch|T2-defNP-DO-ACC-Mn-PostV:MF-Giv:C1:DO:defNP-M-Ref=fish

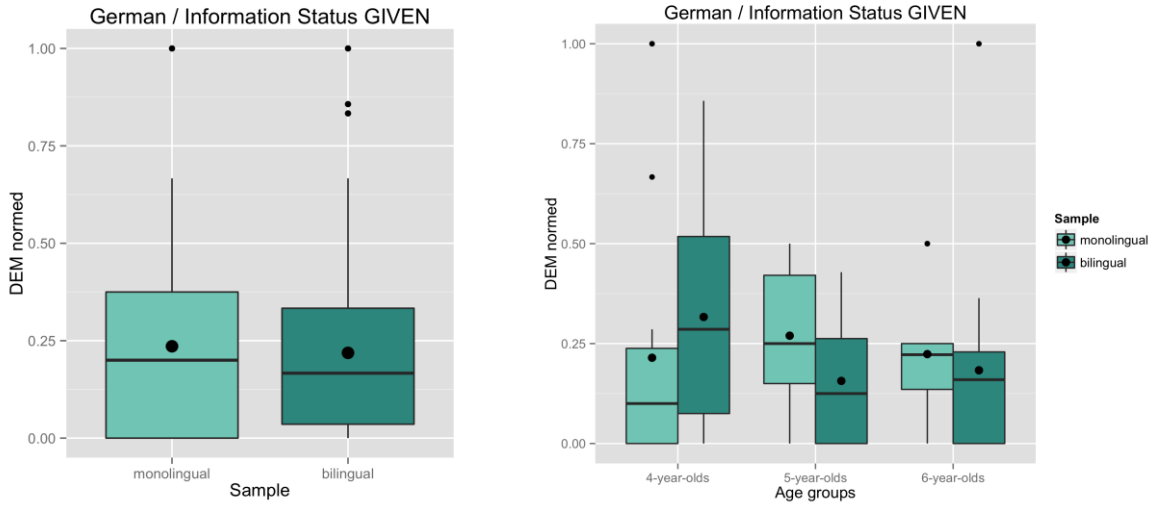
DEMs

In the use of DEMs, both monolingual and bilingual samples perform similarly: 24% in monolinguals and 22% in bilinguals, out of all referential expressions with the information status *given* (see Figure 61a). The data distribution is not normal in monolinguals, and there are several outliers in the bilingual sample. This difference is not significant (Wilcoxon test, W = 1039, p = 0.69).

Comparing the children's performance in different age groups (see Figure 61b), one can see that only in the case of the 4-year-olds do bilingual children use more DEMs than monolingual children (32% vs. 21% respectively). In the case of the 5- and 6-year-olds,

however, the monolinguals use more DEMs (27% vs. 16% at age 5 and 22% vs. 18% at age 6). The difference did not turn out to be significant in any comparison within age groups, based on the results of the Wilcoxon test (W = 83.5, p = 0.16 for 4-year-olds; W = 150, p = 0.1 for 5-year-olds; and W = 122, p = 0.34 for 6-year-olds).

From the developmental point of view, there are no important changes in the monolingual sample, since the number of DEMs is rather stable over age. In the bilingual sample, however, there is a considerable decrease in the use of DEMs between age 4 and 5 (from 32% to 16%). The comparisons across age groups in each sample did not reveal significant differences (Kruskal-Wallis test, x^2 (2) = 1.63, p = 0.44 for monolinguals and x^2 (2) = 3.65, p = 0.16 for bilinguals). A two-factorial analysis of variance was not performed due to the missing precondition regarding the data distribution. Nonetheless, given that no significant differences were found in either comparison, it can be stated that the performance and development in the use of DEMs in bilingual children are similar to those of monolingual children.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 61. DEMs in German / Information status GIVEN

The typical use of DEMs in both samples is demonstrated below:

(144) *Dann kommt der Hund und dann*
then come$_{PRS:3SG}$ the$_{DEF-M:SG:NOM}$ dog$_{M:SG:NOM}$ and then
beisst der [= hund] den [//] die Katze
bite$_{PRS:3SG}$ he$_{DEM-M:SG:NOM}$ the$_{DEF-F:SG:ACC}$ cat$_{F:SG:ACC}$
in den Schwanz. (CAT, md171, 5;6)
in the$_{DEF-F:SG:ACC}$ tail$_{F:SG:ACC}$
Then the dog comes and then he bites the cat in the tail.
der hund|T-defNP-S-NOM-Mn-PostV:MF-Acc:C3:S:defNP-RI-Ref=dog
der|T1-DEM-S-NOM-Mn-PostV:MF-Giv:C1:S:defNP-M-Ref=dog
die katze|T2-defNP-DO-ACC-Mn-PostV:MF-Acc:C3:S:defNP-RI-Ref=cat

(145) *Der [=Vogel] will den [=Graete] essen*. (FOX, md186, 5;3)
he$_{DEM-M:SG:NOM}$ want$_{PRS:3SG}$ he$_{DEM-M:SG:ACC}$ eat$_{INF}$
He wants to eat it.
der|T1-DEM-S-NOM-Mn-PreV:PF-Giv:C1:S:defNP-M-Ref=bird1
den|T2-DEM-DO-ACC-Mn-PostV:MF-Giv:C1:DO:defNP-M-Ref=fish

(146) *Dann der [=Fuchs] nimmt die [=Fish] mit*. (FOX, bd011, 4;02)
Then he$_{DEM-M:SG:NOM}$ take$_{PRS:3SG}$ she$_{DEM-F:SG:ACC}$ with
Then he takes it with (him).
der|T1-DEM-S-NOM-Mn-PreV:MF-Giv:C1:S:DEM-M-Ref=fox
die|T2-DEM-DO-ACC-Mn-PostV:MF-Acc:C2:DO:DEM-RI-Ref=fish

In (144) and (145) DEMs refer to the referents mentioned in the previous clause, their antecedents being defNPs and having the same syntactic function as in the actual clause. In (146) only the first referential expression *der* has the information status *given.* It refers to a referent mentioned in the previous clause, whereas the second referential expression *die* has the status *accessible.* It refers to a referent mentioned two clauses back and is not analyzed here. The antecedents this time are DEMs, not defNPs, with the same syntactic function as in the actual clause. These examples indicate that the use of DEMs is not necessarily bound to the type of referential expression of the antecedent or to its syntactic function.

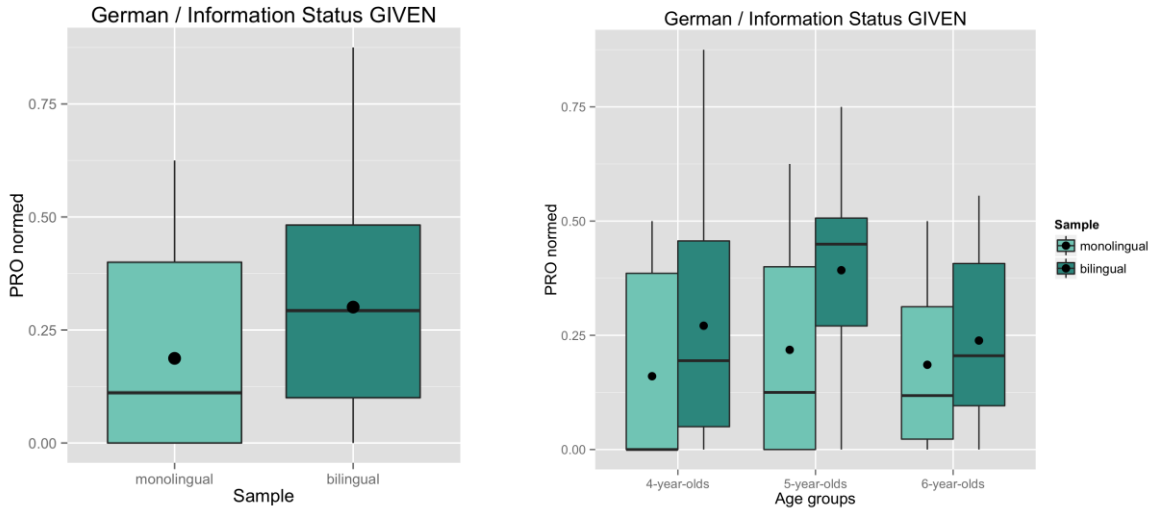
PROs

Comparing the use of PROs in the whole samples, one can see that bilingual children use far more PROs than monolingual children: 30% vs. 19% respectively, out of all referential expressions with the information status *given.* The data are distributed near normally in bilinguals but not in monolinguals (see Figure 62a). The difference between the samples is statistically significant (Wilcoxon test, W = 681, p = 0.012*).

With regard to the children's performance within different age groups (see Figure 62b), it can be seen that bilinguals always use more PROs than monolinguals: 27% vs. 16% in 4-year-olds, 39% vs. 22% in 5-year-olds, and 24% vs. 19% in 6-year-olds. The data distribution is near normal in all age groups in bilinguals, whereas in monolinguals it becomes more normal only at age 6. Based on the results of the Wilcoxon test (W = 82.5, p = 0.14 for 4-year-olds; W = 63.5, p = 0.06 for 5-year-olds; and W = 83, p = 0.47 for 6-year-olds), however, the differences between bilinguals and monolinguals are not significant for either age group (not even for 5-year-olds, where it seems to be rather clear).

With regard to the developmental patterns in both samples, the use of PROs in monolinguals is rather stable over age (16%, 22%, and 19% for 4-, 5-, and 6-year-olds respectively), whereas the number of PROs in bilinguals increases from 27% at age 4 to 39% at age 5 and decreases again to 24% at age 6. However, here as well, there is no significant difference across age groups in either sample, based on the results of the Kruskal-Wallis test performed for the monolingual sample (x^2 (2) = 0.56, p = 0.76) and one-way ANOVA performed for the bilingual sample (F (2, 57) = 2.8, p = 0.07). Due to the

missing precondition regarding the data distribution, a two-factorial analysis of variance was not performed.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 62. PROs in German / Information status GIVEN

Overall, these results indicate similar performance and development in monolingual and bilingual children: the only significant difference was revealed in the comparison of the whole samples. It indicates that bilinguals indeed use more PROs than monolinguals for reference maintenance, as predicted for the use of PROs in Russian-German bilinguals. At the same time, although in all age groups bilinguals always use more PROs than monolinguals, no statistically significant differences were found in within- or across-age-group comparisons. Thus, there is no sufficient statistical evidence for significant differences in the use of PROs over age (probably due to a large variation in the data distribution within age groups).

The typical use of PROs is illustrated in examples (147) and (148):

(147) *Der Vogel hat ihn [= Graete] dann geholt.* (FOX, md186, 5;3)
the$_{DEF\text{-}M:SG:NOM}$ bird$_{M:SG:NOM}$ have$_{AUX\text{-}PRS:3SG}$ he$_{M:SG:ACC}$ then take$_{PTCP\text{-}PST}$
Then the bird took it.
der vogel|T1-defNP-S-NOM-Mn-PreV:PF-Giv:C1:S:DEM-M-Ref=bird1
ihn|T2-PRO-DO-ACC-Mn-PostV:MF-Giv:C1:DO:DEM-M-Ref=fish

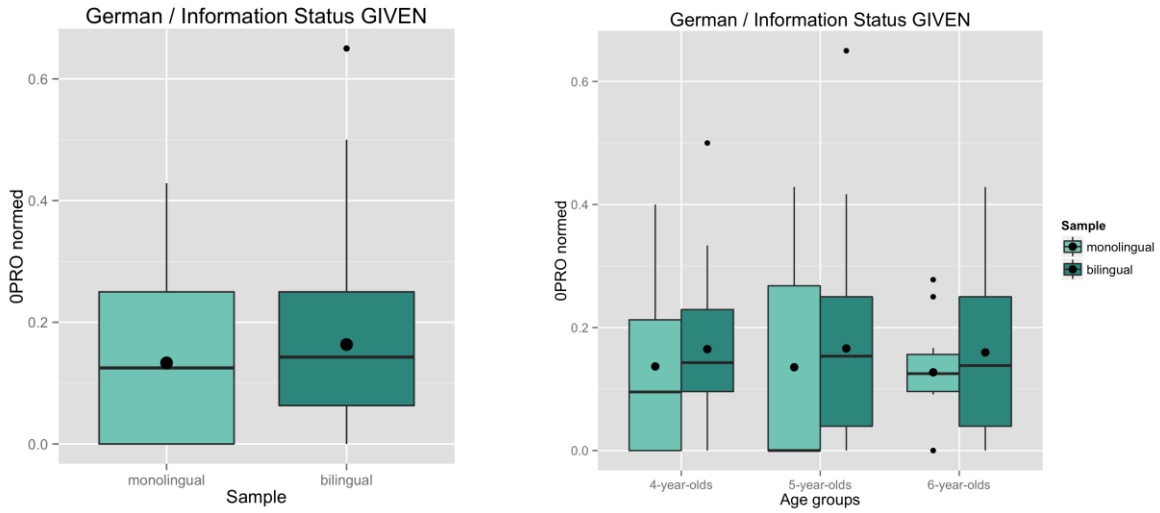
(148) *Und dann hat er den Fisch* (FOX, bd075; 4;10)
and then have$_{AUX\text{-}PRS:3SG}$ he$_{M:SG:NOM}$ the$_{DEF\text{-}M:SG:ACC}$ fish$_{M:SG:ACC}$
geschmeissen [*] [: geschmissen] [].
drop$_{PTCP\text{-}PST}$
And then he dropped the fish.
er|T1-PRO-S-NOM-Mn-PostV:MF-Giv:C1:S:PRO-M-Ref=bird1
den Fisch|T2-defNP-DO-ACC-Mn-PostV:MF-Giv:C1:DO:PRO-M-Ref=fish

As shown in (147) and (148), PROs are used as subjects or objects in both samples, without preference to a specific syntactic function. The antecedents of PROs vary, e.g., in/defNPs, PROs, 0PROs, DEMs, indicating that, here as well, there is no specific dependence on any type of antecedent for the choice of a PRO. Given that PROs are used quite extensively, there are also many cases where children use PROs for every referent in a clause. However, PROs may have different information statuses in the same sentence, as in (149) where only *sie (she),* referring to *fish*, is given, whereas *er(he),* referring to *fox*, is accessible:

(149) *Er schnappt sie mit den [*] [: dem] Mund.* (FOX, bd038, 5;06)
he$_{M\text{-}SG:NOM}$ snap$_{PRS:3SG}$ she$_{F\text{-}SG:ACC}$ with the$_{DEF\text{-}M:SG:DAT}$ mouth$_{M:SG:DAT}$
He snaps it with the mouth.
er|T1-PRO-S-NOM-Mn-PreV:PF-Acc:C2:S:PRO-RI-Ref=fox
sie|T2-PRO-DO-ACC-Mn-PostV:MF-Giv:C1:S:DEM-M-Ref=fish

0PROs

In the use of 0PROs, there is almost no difference between monolingual and bilingual samples: 13% vs. 16% respectively, out of all referential expressions with the information status *given* (see Figure 63a). The data distribution in bilinguals is near normal despite one outlier, and in monolinguals it is not. Based on the results of the Wilcoxon test (W = 855.5, p = 0.28), this difference is not significant.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 63. 0PROs in German / Information status GIVEN

Looking at the age groups separately (see Figure 63b), one can observe that, although the number of 0PROs in monolingual and bilingual children is comparable within each age

group (14% vs. 16% in 4-year-olds, 14% vs. 17% in 5-year-olds, and 13% vs. 16% in 6-year-olds), the data distribution is quite different: in bilinguals almost all children in each age group use 0PROs with a rather large variation. Among 4- and 5-year-old monolinguals half of the children do not use 0PROs at all. Among 6-year-old monolinguals almost all children do it, with a rather small variation in the data (except for outliers). The comparisons within age groups show no significant differences, based on the results of the Wilcoxon test for 4- and 5-year-olds ($W = 100.5$, $p = 0.45$ for 4-year-olds; $W = 95$, $p = 0.54$ for 5-year-olds) and of the Welch t-test for 6-year-olds ($t(25.55) = -0.77$, $p = 0.45$).

With regard to the developmental patterns in monolingual and bilingual children, there is not much variation across age groups in either sample. The number of 0PROs remains almost equal over age: 14%, 14%, and 13% in 4-, 5-, and 6-year-old monolinguals, and 16%, 17%, and 16% in bilinguals in the same age groups. What changes is the variation in the data, especially in monolinguals. From a statistical point of view, there is no significant difference across age groups in either sample, based on the results of the Kruskal-Wallis test for the monolingual sample ($x^2(2) = 0.07$, $p = 0.96$), and one-way ANOVA for the bilingual sample ($F(2, 57) = 0.12$, $p = 0.99$). A two-factorial analysis of variance was not performed due to the missing precondition regarding the data distribution.

Overall, due to the lack of significant differences in either comparison within and across age groups as well as between the whole samples, the results indicate similar performance and development in monolingual and bilingual children in the use of 0PROs for reference maintenance.

The typical use of 0PROs in both samples is demonstrated below:

(150) *Der Vogel roch den Fisch*
the$_{DEF\text{-}M:SG:NOM}$ bird$_{M:SG:NOM}$ smell$_{PST:3SG}$ the$_{DEF\text{-}M:SG:ACC}$ fish$_{M:SG:ACC}$
und 0word-s wollte sich ihn schnappen. (FOX, md093, 4;7)
and want$_{PST:3SG}$ himself he$_{M:3SG:ACC}$ snap$_{INF}$
The bird smelt the fish and wanted to snap it for himself.
der vogel|T1-defNP-S-NOM-Mn-PreV:PF-Acc:C2:S:defNP-RI-Ref=bird1
den fisch|T2-defNP-DO-ACC-Mn-PostV:MF-Acc:C2:DO:indefNP-RI-Ref=fish
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:defNP-M-Ref=bird1
ihn|T2-PRO-DO-ACC-Mn-PostV:MF-Giv:C0:DO:defNP-M-Ref=fish

(151) *Und die Katze kam dann und 0word-s wollte #*
and the$_{DEF\text{-}F:SG:NOM}$ cat$_{F:SG:NOM}$ come$_{PST:3SG}$ then and want$_{PST:3SG}$
dann die Voegel # fress(e)n. (CAT, bd003, 5;4)
then the$_{DEF\text{-}M:PL:NOM}$ bird$_{M:PL:NOM}$ eat$_{INF}$
Then the cat came and wanted to eat the bird.
die Katze|T-defNP-S-NOM-Mn-PreV:PF-Acc:C3:S:defNP-RI-Ref=cat
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:defNP-M-Ref=cat
die Voegel|T2-defNP-S-NOM-Mn-PostV:MF-Acc:C2:S:defNP-RI-Ref=b-birds

(152) *0word-s bringt was zum Essen, Wuermer.* (CAT, md6_163new, 6;1)
bring$_{PRS:3SG}$ smth for.the food$_{N-SG:DAT}$ worm$_{M-PL:ACC}$
(*She) brings something to eat, worms.*
word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:defNP-M-Ref=m-bird
was|T2-indefPRO-DO-ACC-Mn-PostV:MF-New-FM-Ref=worm
Wuermer|TD-indefNP-DO2-ACC-Mn-Vfin:RD-New-FM-Ref=worm

(153) *0word-s will den essen.* (FOX, bd077, 6;08)
want$_{PRS:3SG}$ he$_{DEM-M:SG:ACC}$ eat$_{INF}$
(*He) wants to eat it.*
word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=bird1
den|T2-DEM-DO-ACC-Mn-PostV:MF-Giv:C1:DO:defNP-M-Ref=fish

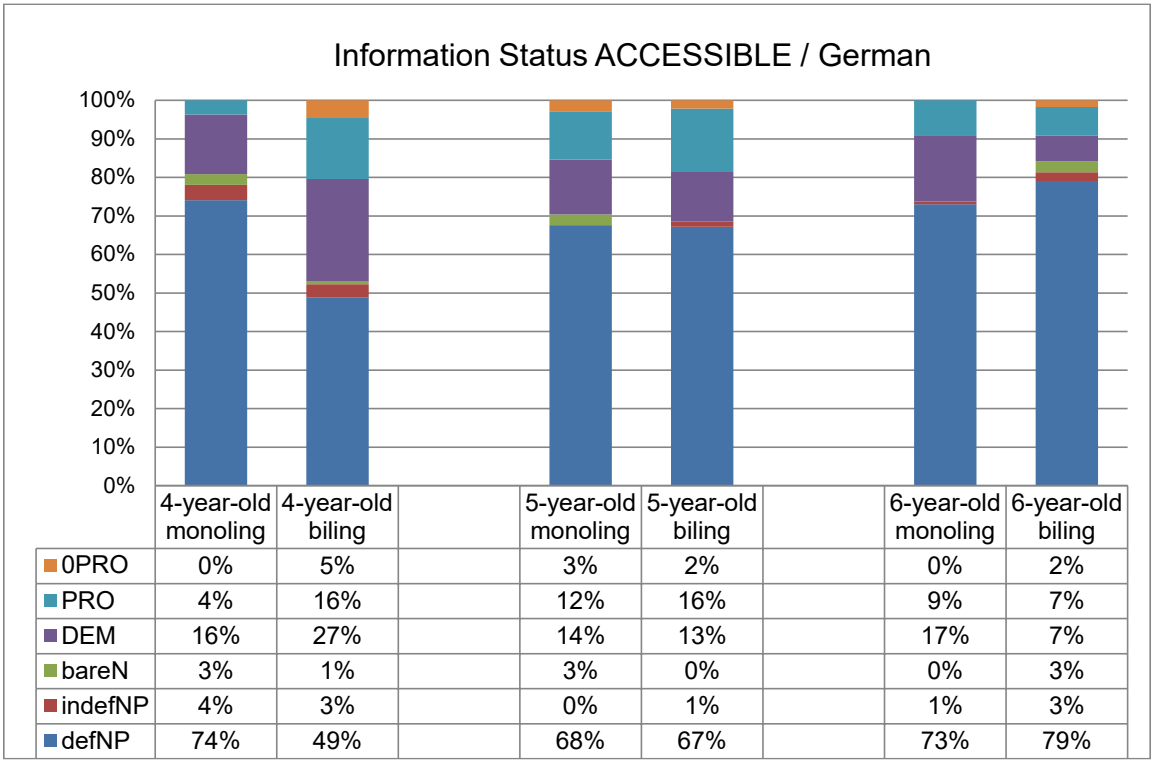
In (150) and (151) the coreferential subjects in the second coordinate clause are omitted, which is a typical use of 0PROs in German in monolinguals as well as in bilinguals. In (152) and (153) these are also omitted coreferential subjects, but this time they are in independent clauses, without coordinate conjunctions. This kind of zero reference is less typical in German but is also present in both samples, more extensively so in the bilingual one.

7.2.2.3 Reintroduction of discourse referents (information status *accessible*)

For reintroducing referents in German, children of both samples use predominantly nominal referential expressions, mostly defNPs, in all age groups, ranging from 68% to 74% in monolinguals and 49% to 79% in bilinguals (see Figure 64). In addition to defNPs, children in different age groups use a small number of bareNs (0% to 3%) as well as indefNPs, also to a low degree (0% to 4%). The use of indefNPs is surprising given that this type of referential expression is not typical for reintroducing referents into narration (since they were already introduced earlier). The peculiar cases of its use are presented later in this section.

With regard to the pronominal referential expressions, children use DEMs as well as PROs (though to a different degree, varying between 4% and 27%) and occasionally even 0PROs (0% to 5%). These are appropriate for maintaining referents but not for reintroducing them (its use is illustrated by examples later in this section). In monolinguals, the number of DEMs is always higher than the number of PROs, whereas in bilinguals this is the case only in 4-year-olds (27% vs. 16%). Overall, the number of all pronominal expressions decreases with age in the bilingual sample, whereas the number of nominal expressions increases. In the monolingual sample, it remains almost at the same level.

Detailed statistical analyses for the types of referential expressions used for reintroducing referents are presented below.



	4-year-old monoling	4-year-old biling		5-year-old monoling	5-year-old biling		6-year-old monoling	6-year-old biling
0PRO	0%	5%		3%	2%		0%	2%
PRO	4%	16%		12%	16%		9%	7%
DEM	16%	27%		14%	13%		17%	7%
bareN	3%	1%		3%	0%		0%	3%
indefNP	4%	3%		0%	1%		1%	3%
defNP	74%	49%		68%	67%		73%	79%

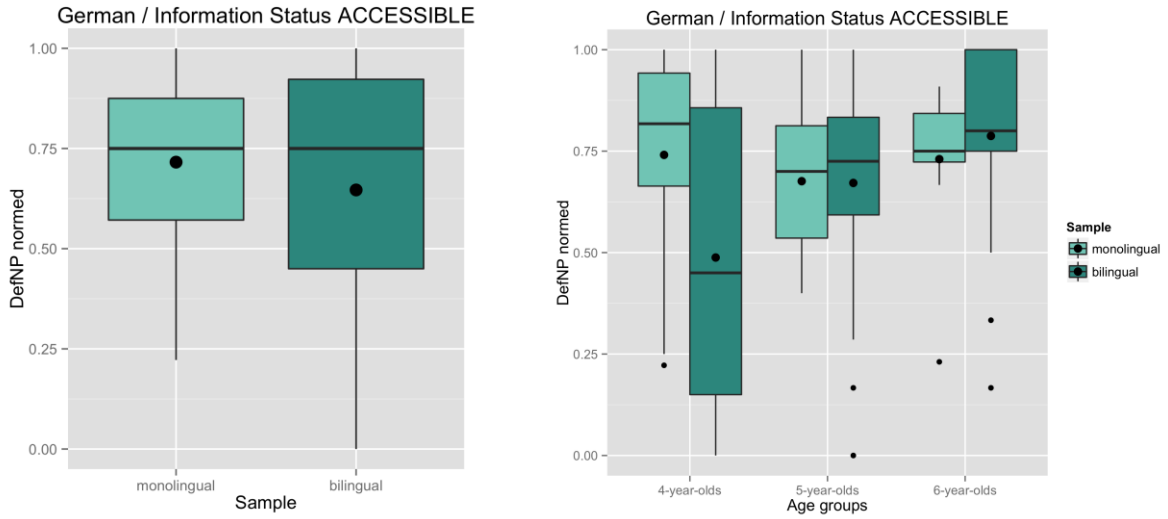
* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 64. Types of referential expressions with information status ACCESSIBLE in German in monolingual and bilingual children: distribution by sample and age group (in %)

DefNPs

DefNP is the most frequent type of referential expression used for reintroducing referents by monolinguals and bilinguals: 72% and 65% respectively in the whole samples, out of all referential expressions with the information status *accessible* (see Figure 65a). The data distribution is considered to be near normal in both samples. The difference between the samples turned out to be not significant (Welch t-test, t (86.69) = 1.21, p = 0.23).

In the comparison of the age groups (see Figure 65b), one can observe that in 4-year-old bilinguals the overall number of defNPs is much smaller than in monolinguals (49% vs. 74%), whereas in 5- and 6-year-olds the numbers are comparable: 68% vs. 67% in monolingual and bilingual 5-year-olds respectively and 73% vs. 79% in monolingual and bilingual 6-year-olds. Thus, in the oldest age group, bilinguals use the highest number of defNPs for the reintroduction of referents. According to the data distribution, many children even use this type of referential expression exclusively. From a statistical point of view and based on the results of the Welch t-test (t (29.12) = 2.16, p = 0.04*), only the difference in the group of 4-year-olds is significant, however, only at the 5% level of significance (probably due to a great variation in the data). The differences in the other age groups are not significant (Welch t-test, t (26.62) = 0.05, p = 0.96 in 5-year-olds; Wilcoxon test, W = 67, p = 0.20 in 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 65. DefNPs in German / Information status ACCESSIBLE

With regard to the developmental patterns, it can be said that monolinguals at all age groups stay on a similar level in the use of defNPs (74%, 68%, and 73% for 4-, 5-, and 6-year-olds respectively), already using a high number of defNPs at age 4. The analysis of variance shows no significant difference across age groups in monolinguals (one-way ANOVA, $F(2, 30) = 0.26$, $p = 0.77$). In bilinguals, on the contrary, there is a continuous increase in the use of defNPs (from 49% at age 4 to 67% at age 5 and 79% at age 6). Here, the variance across age groups is significant, based on the results of the Kruskal-Wallis test ($x^2(2) = 6.61$, $p = 0.036$*). However, the post-hoc tests (pairwise Wilcoxon tests) did not confirm significant differences for any pair of the age groups ($p = 0.26$ for the comparison between 4- and 5-year-olds; the same $p = 0.26$ between 5- and 6-year-olds; $p=0.051$ for the comparison between 4- and 6-year-olds). The significant result for the overall variance is based on the difference between 4- and 6-year-olds, but the level of significance is rather low, explaining why the adjusted p-values are no longer significant. Given that the data are partially not normally distributed, a two-factorial analysis of variance (interaction between age groups and samples) was not performed.

The results indicate similar performance and development in the use of defNPs in monolingual and bilingual children from age 5 on. Only 4-year-old monolingual children use significantly more defNPs than bilingual ones. Beyond that, the developmental pattern in bilinguals demonstrates the predicted increase in the use of defNPs for the reintroduction of referents. Given that monolingual children already use far more defNPs at age 4, it is not surprising that there is no significant increase in the monolingual sample.

The typical use of defNPs in both samples is demonstrated by the following examples:

(154) *Und der Rabe will gerade losfliegen,*
and the$_{DEF\text{-}M:SG:NOM}$ raven$_{M:SG:NOM}$ want$_{PRS:3SG}$ just fly.up$_{INF}$
dann hat ihn schon der Fuchs. (FOX, md093, 4;7)
then have$_{PRS:3SG}$ he$_{M:3SG:ACC}$ already the$_{DEF\text{-}M:SG:NOM}$ fox$_{M:SG:NOM}$
And the raven just wants to fly up, then the fox has it already.
der Rabe|T-defNP-S-NOM-Mn-PreV:PF-Acc:C3:IO:defNP-RI-Ref=bird1
ihn|T2-PRO-DO-ACC-Mn-PostV:MF-Acc:C2:DO:PRO-RI-Ref=fish
der Fuchs|T1-defNP-S-NOM-Mn-PostV:MF-Acc:C2:S:defNP-RI-Ref=fox

(155) *Und der Vogel hat [*] [: ist] zum [*] [: zu] seinen*
and the$_{DEF\text{-}M:SG:NOM}$ bird$_{M:SG:NOM}$ have$_{AUX\text{-}PRS:3SG}$ to his$_{M:PL:DAT}$
Kinder [*] [: Kindern] &ge [//] gefliegen [*] [: geflogen] #. (CAT, bd032, 6;9)
child$_{N:PL:DAT}$ fly$_{PTCP\text{-}PST}$
And the bird flew to its children.
der Vogel|T1-defNP-S-NOM-Mn-PreV:PF-Acc:C3:S:defNP-RI-Ref=m-bird
zum seinen Kinder|T2-possNP-PO-ACC-Mn-PostV:MF-Acc:C3:S:defNP-RI-Ref=b-birds

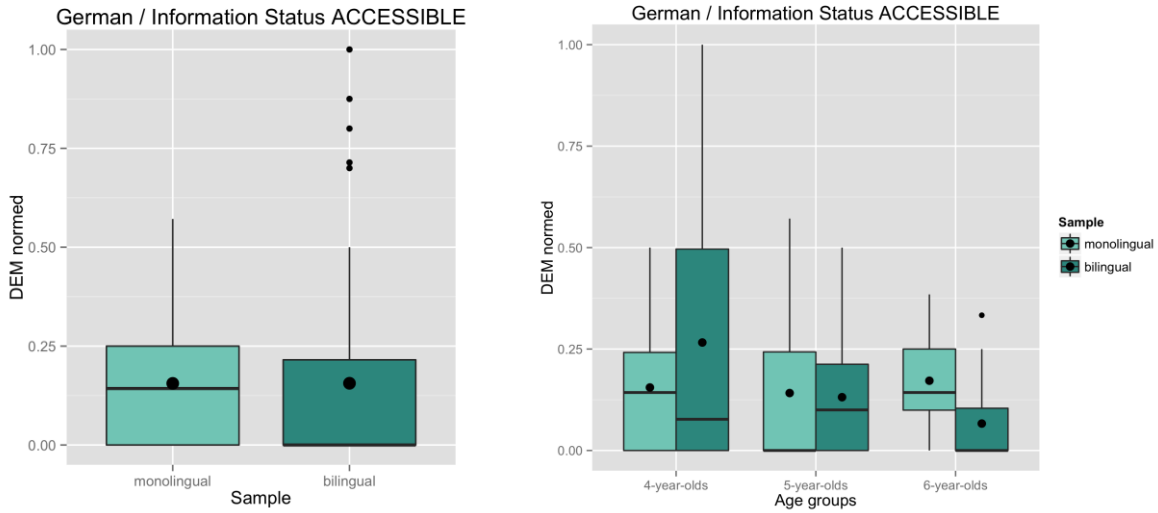
(156) *Dann [2x] war schon die Mama-Vogel da.* (CAT, bd022; 4;10)
then be$_{PST:3SG}$ already the$_{DEF\text{-}F:SG:NOM}$ mother-bird$_{F:SG:NOM}$ there
Then the mother-bird was already there.
die Mama Vogel|T-defNP-S-NOM-Mn-PostV:MF-Acc:C3:S:defNP-RI-Ref=m-bird

In all presented examples, the referents were properly reintroduced with defNPs. The antecedents, mentioned in the second clause or further back, are also defNPs, but there is no rule for this. The antecedent could have been expressed by any other referential expression, indefNP, DEM, PRO, or 0PRO.

DEMs

Children from both monolingual and bilingual samples use 16% of DEMs, out of all referential expressions with the information status *accessible* (see Figure 66a). The difference is clearly not significant (Wilcoxon test, W = 1085, p = 0.34). At the same time, the data are not normally distributed, and there are several outliers in the bilingual sample, indicating those children who use it to a very high degree. It is only due to these outliers that the overall number of DEMs is the same as in the monolingual sample, whereas most bilingual children do not use DEMs at all (the median is at zero point).

Comparing the performance in different age groups (see Figure 66b), one can observe that only 4-year-old bilingual children use more DEMs than monolingual children (27% vs. 16% respectively), whereas in the other age groups it is the monolinguals who use more DEMs for reintroducing referents: 14% vs. 13% at age 5 and 17% vs. 7% at age 6 (in monolinguals and bilinguals respectively). A significant difference in within-age group comparisons could only be confirmed statistically for the oldest age group (Wilcoxon test W = 114, p = 0.82 for 4-year-olds; W = 107.5, p = 0.93 for 5-year-olds; and W = 143, p = 0.021* for 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 66. DEMs in German / Information status ACCESSIBLE

With regard to the developmental patterns, it can be seen that in the monolingual sample there is not much change over age in the overall number of DEMs, ranging between 13% and 16%. What does change is the data distribution, becoming near normal by age 6. The difference across age groups is not significant (Kruskal-Wallis test, x^2 (2) = 0.81, p = 0.67). In the bilingual sample the developmental pattern is more visible: children continuously reduce the use of DEMs with age (from 27% at age 4 to 7% at age 6). However, the difference across age groups in bilinguals is not significant either (Kruskal-Wallis test, x^2 (2) = 2.91, p = 0.23).

The overall results for the use of DEMs indicate similar performance and development in monolingual and bilingual children. The only difference is in the group of 6-year-olds, where bilingual children use significantly fewer DEMs than monolinguals.

Several examples below demonstrate the use of DEMs in both samples:

(157) *Dann ist der [= Vogel] weggeflogen*. (CAT, md115, 5;4)
then be$_{AUX\text{-}PRS:3SG}$ he$_{DEM\text{-}M:SG:NOM}$ fly.away$_{PTCP\text{-}PST}$
Then he flew away.
der|T-DEM-S-NOM-Mn-PostV:MF-Acc:C2:S:0PRO-RI-Ref=m-bird

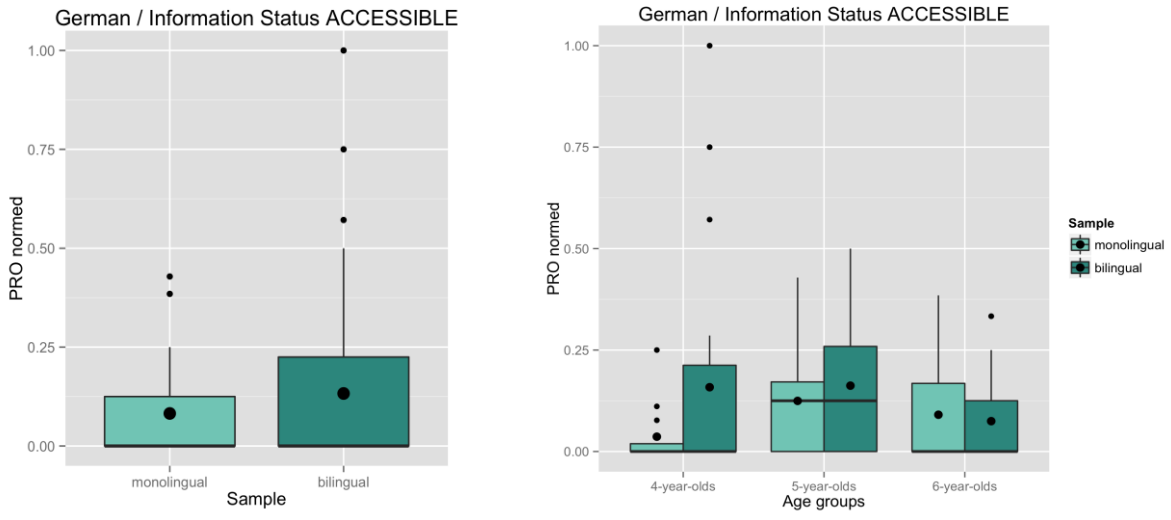
(158) *<Und der> [2x] moechte die noch fress(e)n*. (FOX, bd011, 4;02)
and he$_{DEM\text{-}M:SG:NOM}$ would.like$_{SBJV\text{-}PRS:3SG}$ she$_{DEM\text{-}F:SG:ACC}$ still eat$_{INF}$
And he still wants to eat it.
der|T1-DEM-S-NOM-Mn-PreV:PF-Acc:C2:S:DEM-RI-Ref=bird1
die|T2-DEM-DO-ACC-Mn-PostV:MF-Giv:C1:DO:DEM-M-Ref=fish

(159) *Hier hat er den weggenommen,*
here have$_{AUX\text{-}PRS:3SG}$ he$_{M:3SG:NOM}$ he$_{DEM\text{-}M:SG:NOM}$ take.away$_{PTCP\text{-}PST}$
den Fisch. (FOX, md168_new; 6;0)
the$_{DEF\text{-}M:SG:ACC}$ fish$_{M:SG:ACC}$
Here he took it away, the fish.
er|T1-PRO-S-NOM-Mn-PostV:MF-Giv:C1:S:0PRO-M-Ref=bird1
den|T2-DEM-DO-ACC-Mn-PostV:MF-Acc:C3:DO:DEM-RI-Ref=fish
den Fisch|TD-defNP-DO2-ACC-Mn-Vfin:RD-Acc:C3:DO:DEM-RI-Ref=fish

In (157), the use of DEM for reference to the bird is supported by the lexical context (only the bird can fly in the story). In (158) and (159), however, this is not the case. Here it is not clear from the context who wants to eat what or whom at this particular moment of the story. Furthermore, when several DEMs are used in the same sentence, as in (158), it takes more effort for the listener to establish the reference to the corresponding protagonists, something children often do not seem to take into account. Sometimes, however, children notice themselves that in such contexts there is a need for reference disambiguation and complete the sentence with the corresponding defNP, as in (159). These cases are very rare though.

PROs

With regard to the use of PROs for reintroducing referents, monolingual children seem to use fewer PROs than bilingual ones: 8% in monolinguals and 13% in bilinguals, out of all referential expressions with the information status *accessible* (see Figure 67a). The data distribution is not normal in both samples. The difference between the samples is not statistically significant (Wilcoxon test, W = 885.5, p = 0.43).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 67. PROs in German / Information status ACCESSIBLE

In the comparison of the age groups (see Figure 67b), it can be observed that bilingual children use more PROs than monolingual children in the two youngest age groups (16% vs. 4% at age 4 and 16% vs. 12% at age 5). This is not the case in the 6-year-olds, where the overall number is almost the same (8% in bilinguals vs. 9% in monolinguals). Although the difference in 4-year-olds seems to be quite considerable, it is not statistically significant (Wilcoxon test, W = 100.5, p = 0.39). The differences in two other age groups are also not significant (Wilcoxon test, W = 98.5, p = 0.64 for 5-year-olds and W = 99.5, p = 0.83 for 6-year-olds).

With regard to the developmental patterns in both samples, it can be observed that monolinguals even increase the use of PROs at age 5 and 6 (to 12% and 9% respectively) compared to age 4 (only 4%), whereas bilinguals reduce it by age 6 (8%) compared to age 4 and age 5, where they use equally 16% of PROs. However, here as well, no significant differences across age groups could be found in either sample (Kruskal-Wallis test, $x^2(2) = 3.74$, $p = 0.15$ for monolinguals and $x^2(2) = 3.36$, $p = 0.19$ for bilinguals). Thus, overall, the results indicate similar performance and development in the bilingual and monolingual samples.

The examples below show the typical use of PROs for reintroducing referents into narration:

(160) *Dann wartet sie [= Katze].* (CAT, md115, 5;4)
then wait$_{PRS:3SG}$ she$_{F:SG:NOM}$
Then she waits.
sie|T-PRO-S-NOM-Mn-PostV:MF-Acc:C2:S:0PRO-RI-Ref=cat

(161) *Und dann ist [//] hat [//] dann is(t) es runtergefallen [?].* (FOX, bd013, 4;10)
and then then be$_{AUX-PRS:3SG}$ it$_{N:SG:NOM}$ fall.down$_{PTCP-PST}$
And then it fell down.
es|T-PRO-S-NOM-Mn-PostV:MF-Acc:C2:DO:PRO-RI-Ref=fish

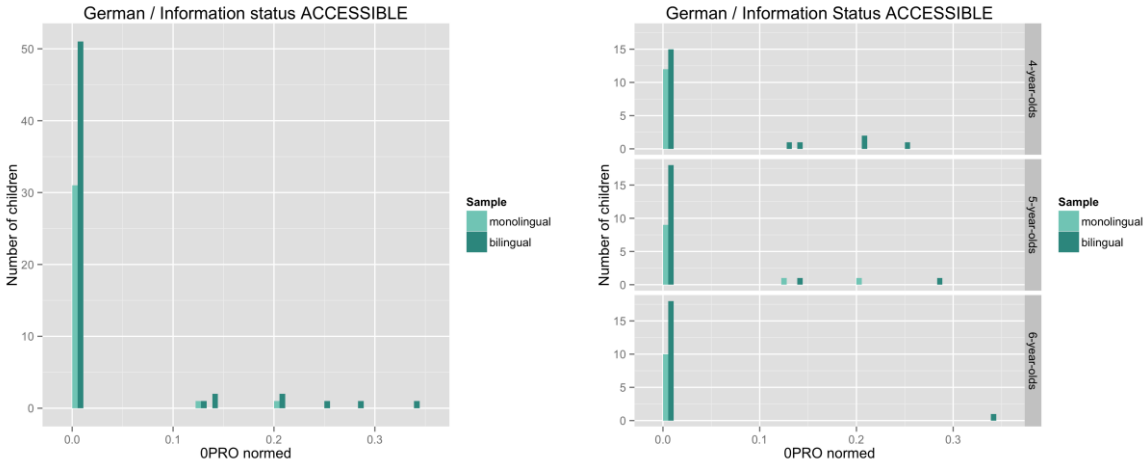
Similarly to the use of DEMs, PROs are sometimes used in reintroduction contexts despite the ambiguity of the reference. In (160), the reference is not immediately clear from the context, whereas in (161) the reference can at least be deduced from the story context, given that in the FOX story only the fish falls down.

The remaining types of analyzed referential expressions, 0PROs, indefNPs, and bareNs, are rarely used for reintroducing discourse referents. This is justified as these types are not typically used for reintroducing referents (with the exception of bareNs, which have no specific discourse function and are mistakenly used in place of in/defNPs in any of the discourse contexts in German). However, it is worth looking briefly at some examples that demonstrate in which contexts these types of referential expressions are used.

0PROs

There are practically no 0PROs used for reintroducing referents, 1% in the monolingual (n=2) and 3% in the bilingual sample (n=8) taken as a whole, out of all referential expressions with the information status *accessible* (see Figure 68a), the difference being insignificant (Fisher test, p = 0.49).

In the age group comparisons (see Figures 68b) the biggest difference is in the 4-year-olds (0% in monolinguals vs. 5% in bilinguals), in the other age groups the difference is minimal (3% vs. 2% in 5-year-old and 0% vs. 2% in 6-year-old monolingual and bilingual children respectively). Based on the results of the Fisher test (p = 0.13 for 4-year-olds, p = 0.60 for 5-year-olds, and p = 1 for 6-year-olds), none of these differences is significant. Although there is a tendency to reduce the use of 0PROs with age, the small data size does not give enough evidence for further statistical analyses.



a. Whole samples b. Age groups

Figure 68. 0PROs in German / Information status ACCESSIBLE

The examples below demonstrate in which contexts 0PROs are used, if only very rarely:

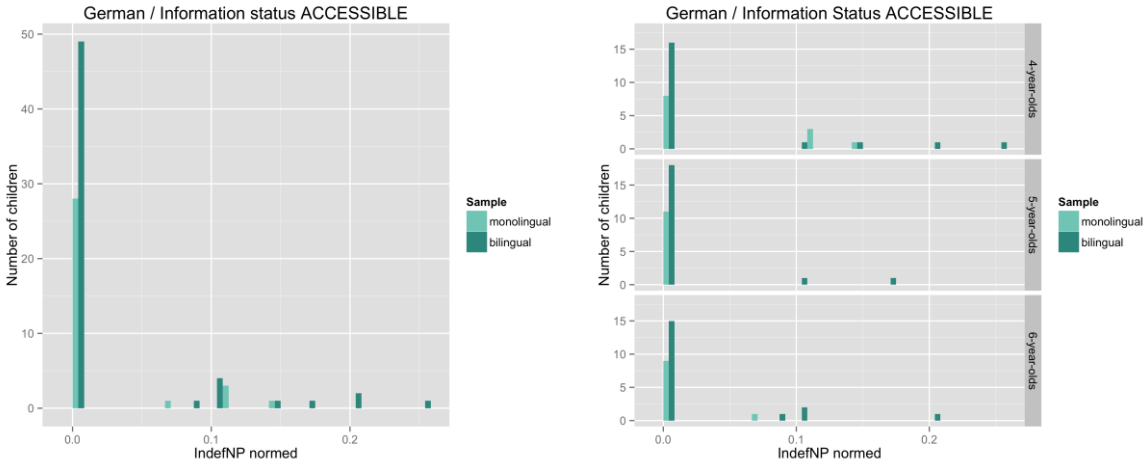
(162) *Und dann hat der Fuchs 0word-o.* (FOX, md127, 5;3)
and then have$_{PRS:3SG}$ the$_{DEF-M:SG:NOM}$ fox$_{M:SG:NOM}$
And then the fox has (it).
der fuchs|T1-defNP-S-NOM-Mn-PostV:MF-Acc:C2:S:defNP-RI-Ref=fox
word|T2-0PRO-DO-Mn-Vfin-Acc:C3:DO:defNP-RI-Ref=fish

(163) *Und dann hat er 0word-o genehmt [*] [: genommen].* (FOX, bd075, 4;10)
and then have$_{AUX-PRS:3SG}$ he$_{M:3SG:NOM}$ take$_{PTCP-PST}$
And then he took (it).
er|T1-PRO-S-NOM-Mn-PostV:MF-Giv:C1:DO:PRO-M-Ref=fox
word|T2-0PRO-DO-Mn-Vfin-Acc:C2:DO:0PRO-RI-Ref=fish

In both examples it is the obligatory objects that are omitted. Each one of the very few cases of 0PRO used for reintroducing referents is an omitted object. However, the use of 0PROs in this context is so rare that it could be considered erroneous and occasional rather than systematic.

IndefNPs

IndefNP is used equally at 2% in each sample taken as a whole (n=5 for monolinguals and n=10 for bilinguals) and from 0% to 4% in different age groups, out of all referential expressions with the information status *accessible* (see Figures 69a and 69b respectively). Based on the results of the Fisher test (p = 0.43, p = 0.53, and p = 0.64 for 4-, 5-, and 6-year-olds respectively), the difference between monolingual and bilingual performance is not significant for any of the age groups. Due to the small data size, no other statistical analyses have been performed.



a. Whole samples b. Age groups

Figure 69. IndefNPs in German / Information status ACCESSIBLE

The two examples below are typical for the use of indefNPs in reintroduction contexts:

(164) *Und da kommt ein Fuchs*. (FOX, md125, 4;10)
and there come$_{PRS:3SG}$ a$_{INDF-M:SG:NOM}$ fox$_{M:SG:NOM}$
And there comes a fox.
ein fuchs|T-indefNP-S-NOM-Mn-PostV:MF-Acc:C2:S:indefNP-RI-Ref=fox

(165) *Und dann war da noch (ei)ne Katze*. (CAT, bd036, 6;7)
and then be$_{PST:3SG}$ there more a$_{INDF-F:SG:NOM}$ cat$_{F:SG:NOM}$
And then there was one more cat.
eine Katze|T-indefNP-S-NOM-Mn-PostV:MF-Acc:C3:S:indefNP-RI-Ref=cat

Both examples show the incorrect use of indefNPs for reintroducing referents, in that these referents were already introduced previously (correctly by an indefNP) and should therefore be definite in the given sentences. Although it may be the case that children simply

do not always realize that these are the same protagonists, it is likely that by age 6 this explanation does not hold anymore. Given that indefNPs are extremely rare in this condition, it may instead be explained by erroneous use instead of lack of pragmatic competence. The same children otherwise use defNPs in similar contexts throughout their stories.

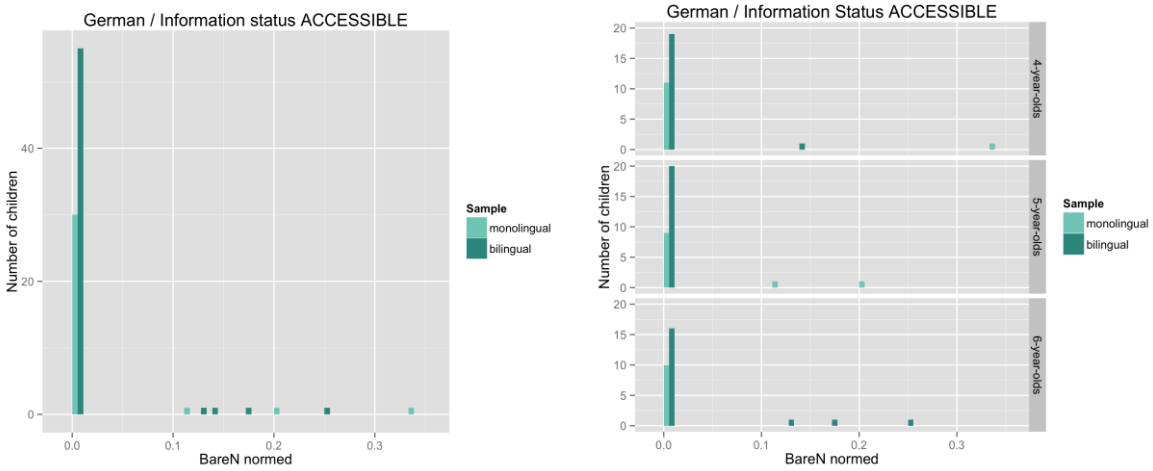
The next example demonstrates a different way of using indefNPs:

(166) *Und das [*] [: der] Fuchs siehte [*] [: sah] [ein [*] [: einen] Vogel] [//]*
and the$_{DEF\text{-}N:SG:NOM}$ fox$_{M:SG:NOM}$ see$_{PST:3SG}$ a$_{INDF\text{-}M:SG:ACC}$ bird$_{M:SG:ACC}$
dass ein Vogel in sein [*] [: seinem] Schnabel
that a$_{INDF\text{-}M:SG:NOM}$ bird$_{M:SG:NOM}$ in his$_{M:SG:DAT}$ beak$_{M:SG:DAT}$
ein [*] [: einen] Fisch hat. (FOX, bd035, 6;5)
a$_{INDF\text{-}M:SG:ACC}$ fish$_{M:SG:ACC}$ have$_{PRS:3SG}$
And the fox saw [a bird], that a bird has a fish in its beak.
das Fuchs|T1-defNP-S-NOM-Mn-PreV:PF-Giv:C1:S:indefNP-M-Ref=fox
ein Vogel|T2-indefNP-DO-NOM-Mn-PostV:MF-Acc:C2:S:0PRO-RI-Ref=bird1
ein Vogel|T1-indefNP-S-NOM-Sub-PreV:PF-Giv:C0:DO:indefNP-M-Ref=bird1
ein Fisch|T2-indefNP-DO-NOM-Sub-PreV:PF-Acc:C2:DO:possNP-RI-Ref=fish

In this particular case, the child seems to change the perspective from his own to the perspective of the fox (the fox saw that some bird had a fish in its beak). Thus, although the same bird and the same fish have already been introduced into the narration, from the fox's perspective they are new referents. Nonetheless, such exceptional cases were coded as referents with the information status *accessible* in relation to the general flow of the story.

BareNs

The use of bareNs is very restricted in both samples, 2% in the monolingual sample (n=3) and 1% in the bilingual sample (n=4), out of all referential expressions with the information status *accessible* (see Figure 70a).



a. Whole samples b. Age groups

Figure 70. BareNs in German / Information status ACCESSIBLE

In the age groups (see Figure 70b), it ranges from 0% to 3% and in no age group or samples a significant difference could be confirmed, based on the results of the Fisher test ($p = 0.69$ for the whole samples, $p = 1$, $p = 0.12$, and $p = 0.53$ for 4-, 5-, and 6-year-olds respectively). Due to the small data size, no other statistical analyses were done.

The rarest use of bareNs for reintroducing referents is always the erroneous omission of articles (in this case definite ones). This use is not bound to a specific pragmatic context, given that bareNs were used for introducing and maintaining referents as well. Overall, only very few children use bareNs at all, and they do not do it throughout the story but only occasionally.

The examples (167) and (168) demonstrate it very clearly:

(167) *Da will der Fuchs da hoch klettern*
there want$_{PRS:3SG}$ the$_{DEF-M:SG:NOM}$ fox$_{M:SG:NOM}$ there high climb$_{INF}$
und Adler will nicht runter. (FOX, mb127, 5;3)
and eagle$_{M:SG:NOM}$ want$_{PRS:3SG}$ not down
There the fox wants to climb up, and (the) eagle does not want (to fly) down.
der fuchs|T-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:0PRO-M-Ref=fox
adler|T-bareN-S-NOM-Mn-PreV:PF-Acc:C3:S:defNP-RI-Ref=bird1

(168) *Dann fliegt die Mama von 0word-d Kindern*
then fly$_{PRS:3SG}$ the$_{DEF-F:SG:NOM}$ mother$_{F:SG:NOM}$ of/from child$_{N:PL:DAT}$
zu 0word-d Papa. (CAT, bd037, 4;5)
to father$_{M:SG:DAT}$
Then the mother of/from (the) children flies to (the) father.
die Mama|T1-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:DEM-M-Ref=m-bird
von Kindern|T2-bareN-PO-DAT-Mn-PostV:MF-Acc:C2:bareN-RI-Ref=b-birds
zu Papa|T3-bareN-PO-DAT-Mn-PostV:MF-Giv:C1:S:defNP-M-Ref=p-bird

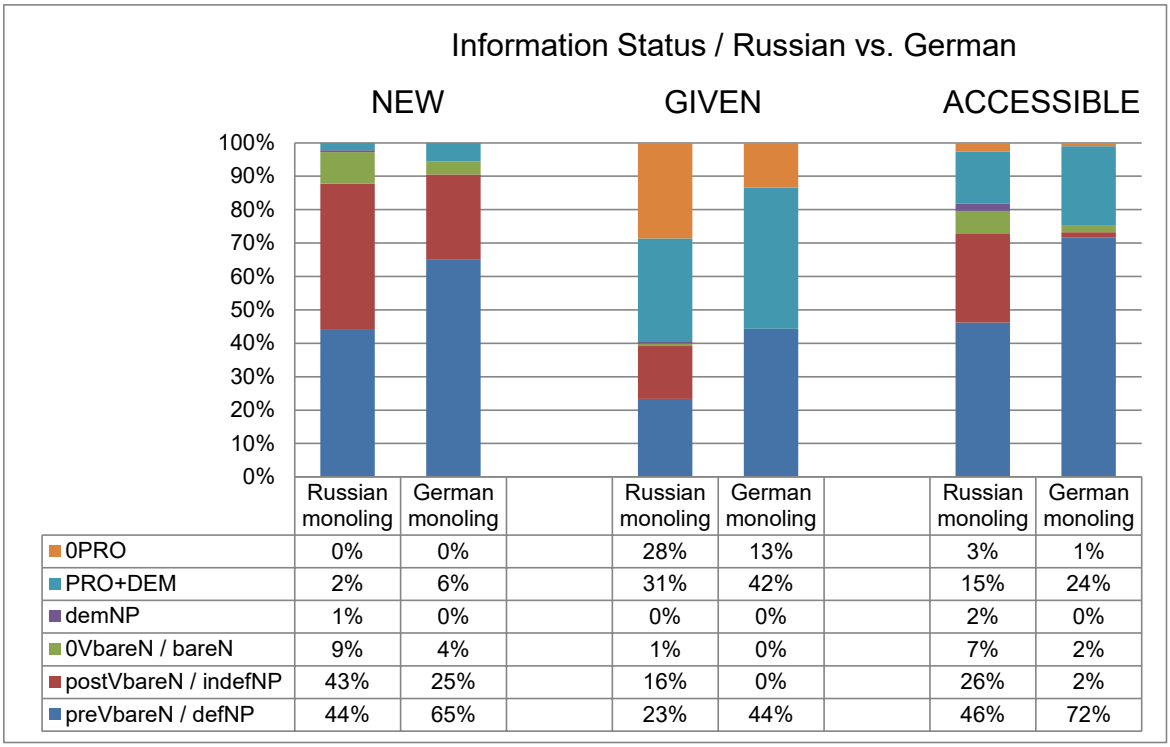
In both examples, children use defNPs as well as bareNs, regardless of their syntactic role or position. In example (167), the subject of the first clause was correctly expressed by a defNP, whereas the subject of the second clause was erroneously produced as a bareN. In examples (168), bareN refers to the prepositional object. The use of bareNs is therefore quite random and, in any case, very rare.

7.2.3 Russian and German in crosslinguistic comparison

This part of the analysis is related to the third group of research questions and hypotheses about the pragmatic use of reference with focus on crosslinguistic comparisons of the monolingual and bilingual samples within and across age groups. For crosslinguistic comparisons, certain referential types were combined into comparable categories, similarly to the analysis presented in section 7.1.3. The categories may be different depending on the referent's information status, e.g., for comparing the use of indefinite reference in Russian and German for the introduction of new referents these are postVbareNs in Russian vs. indefNPs in German, for comparing the use of reference for the maintenance and

reintroduction of referents all bareNs and demNPs in Russian vs. in/defNPs and bareNs in German are included in one category. PROs and DEMs[79] were combined into one category for the comparison of the overt use of pronominal reference in both languages. 0PROs are compared directly. More details on the categorization are given below in the corresponding subsections.

As was already shown in the previous two sections analyzing children's performance in Russian and German separately, the distribution of referential types is different according to their information status. It can be seen in the general overview presented in Figure 71 on monolinguals and Figure 72 on bilinguals.



	Russian monoling	German monoling		Russian monoling	German monoling		Russian monoling	German monoling
0PRO	0%	0%		28%	13%		3%	1%
PRO+DEM	2%	6%		31%	42%		15%	24%
demNP	1%	0%		0%	0%		2%	0%
0VbareN / bareN	9%	4%		1%	0%		7%	2%
postVbareN / indefNP	43%	25%		16%	0%		26%	2%
preVbareN / defNP	44%	65%		23%	44%		46%	72%

* The „shared" categories, e.g., 0VbareN (Russian) / bareN (German) or postVbareN (Russian) / indefNP (German), are not necessarily directly comparable and are combined for technical reasons (in order to present all categories in the same graph).
* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 71. Types of referential expressions in Russian vs. German in monolingual children: distribution by information status (NEW, GIVEN, ACCESSIBLE) and language (in %)

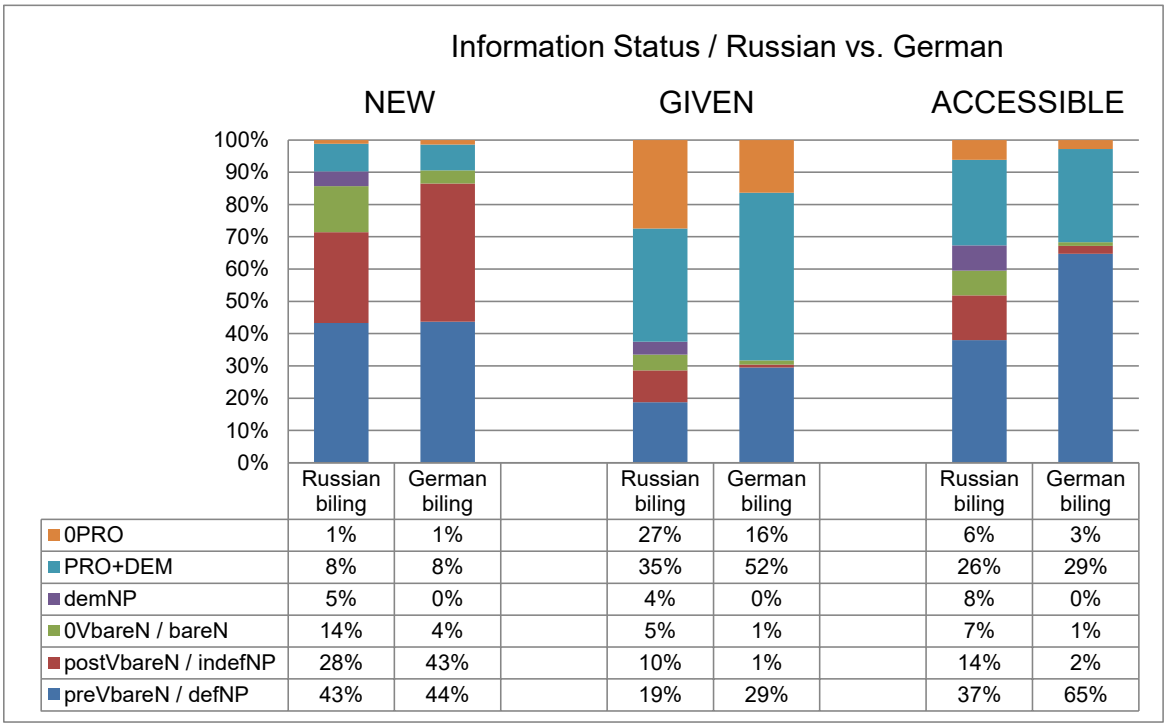
For introducing discourse referents, both monolingual and bilingual children predominantly use nominal types of reference, either definite or indefinite[80], whereas the number of nominal

[79] For the analysis of the overt pronominal reference, DEMs are automatically included in both languages. However, as their number is extremely low in Russian (1% in each sample), in the description of the results it is usually referred only to PROs instead of PROs and DEMs when speaking about overt pronominal reference in Russian.

[80] As a reminder, in Russian, bareNs can be interpreted as definite or indefinite depending on the context. To analyze the referents with the information status *new,* the syntactic position of a bareN relative to the verb was taken into account, namely preVbareN (definite), postVbareN (indefinite), and 0VbareN (either definite or indefinite). For the analysis of referents with the information status *given*

expressions is slightly higher in monolinguals than in bilinguals: 98% and 94% in Russian and German respectively in monolinguals vs. 91% and 92% in bilinguals, out of all referential expressions with the information status *new* in the corresponding languages and samples.

For maintaining reference, children use pronominal (PROs, DEMs, and 0PROs in German and PROs and 0PROs in Russian) as well as nominal types of reference (defNPs in German and bareNs plus demNPs in Russian). The number of pronominal expressions is higher than that of nominal ones in both languages (in Russian 59% in monolinguals and 62% in bilinguals; in German 56% and 68% respectively, out of all referential expressions with the information status *given* in the corresponding language and sample) with the proportion of 0PROs being higher in Russian than in German (28% vs. 13% in monolinguals and 27% vs. 16% in bilinguals respectively). In both languages, the zero reference is used almost exclusively for maintaining reference in the discourse (compared to introducing and reintroducing referents).



	NEW		GIVEN		ACCESSIBLE	
	Russian biling	German biling	Russian biling	German biling	Russian biling	German biling
0PRO	1%	1%	27%	16%	6%	3%
PRO+DEM	8%	8%	35%	52%	26%	29%
demNP	5%	0%	4%	0%	8%	0%
0VbareN / bareN	14%	4%	5%	1%	7%	1%
postVbareN / indefNP	28%	43%	10%	1%	14%	2%
preVbareN / defNP	43%	44%	19%	29%	37%	65%

* The „shared“ categories, e.g., 0VbareN (Russian) / bareN (German) or postVbareN (Russian) / indefNP (German), are not necessarily directly comparable and are combined for technical reasons (in order to present all categories in the same graph).
* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 72. Types of referential expressions in Russian vs. German in bilingual children: distribution by information status (NEW, GIVEN, ACCESSIBLE) and language (in %)

For reintroducing reference, both monolingual and bilingual children mostly use (definite) nominal referential expressions in each language. Russian monolinguals use 81% and German monolinguals use 76% (almost all of which (72%) are defNPs) of nominal expressions, out of all referential expressions with the information status *accessible*. Bilingual

and *accessible,* the syntactic position was not part of the analysis, as it is assumed that all referents can be interpreted as definite (with some exceptions related to the use of 0VbareNs).

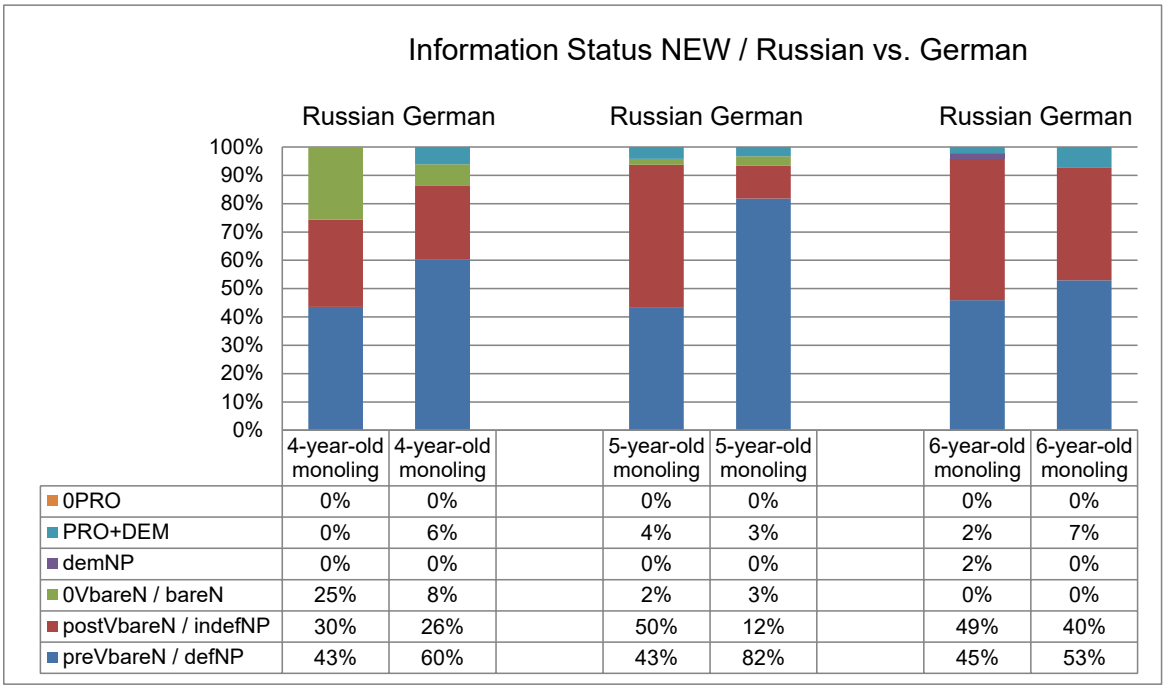
children use almost the same number of nominal expressions in both languages: 66% in Russian, 68% in German, whereas in German, 65% of them are defNPs. At the same time, given that bilingual children use more pronominal expressions than monolingual children, the proportion of 0PROs for bilinguals is also a bit higher than for monolinguals in both languages (6% vs. 3% in Russian and 3% vs. 1% in German).

In the following subsections, more detailed crosslinguistic analyses are presented with respect to each information status and distribution of referential expressions in the whole samples and age groups. The monolingual and bilingual samples are compared separately while special attention is given to language-specific versus more universal, crosslinguistic (not language-specific) developmental patterns (if applicable).

7.2.3.1 Introduction of discourse referents (information status *new*)

The overall use of nominal and pronominal referential expressions in different age groups of the monolingual and bilingual samples is shown in Figure 73 and Figure 74 respectively. In order to trace parallels in the use of indefinite nominal reference, the use of postVbareNs in Russian is compared to the use of indefNPs in German. With regard to the use of definite nominal reference, the use of preVbareNs and demNPs (taken together) in Russian is compared to the use of defNPs in German. 0VbareNs in Russian and bareNs in German are not included in the analysis of indefinite or definite reference, since they cannot be clearly allocated to a definite or indefinite category. Given this way of analysis, not the percentage of referential expressions *per se* is important but their proportions in the samples and development over age in each language. With regard to the use of pronominal reference, PROs and DEMs in German are taken together into a single category and are compared to PROs (and DEMs) in Russian.

It can be observed (see Figure 73) that monolinguals mostly introduce referents with definite nominal expressions, preVbareNs and demNPs in Russian and with defNPs in German. Their proportion does not change much over age in Russian (ranging from 43% to 47%) but changes considerably in German (increasing from 60% at age 4 to 82% at age 5 and decreasing to 53% at age 6). At the same time, bilinguals show a more consistent use of defNPs over age in German (ranging from 40% to 46% in different age groups), whereas their use of preVbareNs and demNPs in Russian changes with age (decreasing from 54% at age 4 to 41% at age 5 and slightly increasing again to 45% at age 6), as can be seen in Figure 74.



	4-year-old monoling	4-year-old monoling		5-year-old monoling	5-year-old monoling		6-year-old monoling	6-year-old monoling
0PRO	0%	0%		0%	0%		0%	0%
PRO+DEM	0%	6%		4%	3%		2%	7%
demNP	0%	0%		0%	0%		2%	0%
0VbareN / bareN	25%	8%		2%	3%		0%	0%
postVbareN / indefNP	30%	26%		50%	12%		49%	40%
preVbareN / defNP	43%	60%		43%	82%		45%	53%

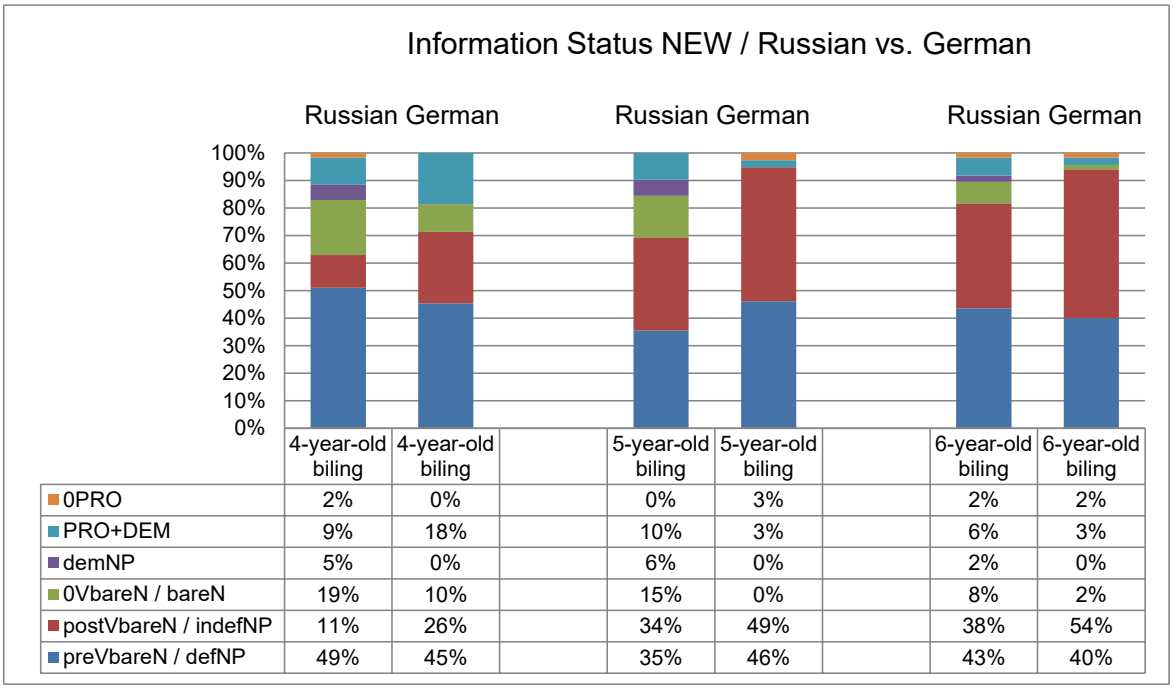
* The „shared“ categories, e.g., 0VbareN (Russian) / bareN (German) or postVbareN (Russian) / indefNP (German), are not necessarily directly comparable and are combined for technical reasons (in order to present all categories in the same graph).

* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 73. Types of referential expressions with information status NEW in Russian vs. German in monolingual children: distribution by language and age group (in %)

With regard to the use of indefinite nominal reference, Russian monolingual children in all age groups use more postVbareNs than German monolingual children with regard to indefNPs: 30% vs. 26% at age 4, 50% vs. 12% at age 5 and 49% vs. 40% at age 6. Russian monolinguals increase the use of indefinite reference already by age 5, whereas German monolinguals first reduce its use by age 5 and then increase it by age 6. In bilingual children, the situation is quite different. They continuously increase the use of indefinite reference in both languages (from 11% to 38% in Russian and 26% to 54% in German), whereas the proportion of indefNPs in German is always bigger than the proportion of postVbareNs in Russian.

With regard to the use of pronominal reference for introducing new referents, monolingual children show similar performance in both languages: they use very few or no PROs+DEMs (0-4% in Russian and 3-7% in German in different age groups) and no 0PROs. Bilingual children tend to use more pronominal expressions in Russian, except at age 4, when they use up to 18% of PROs and DEMs (taken together) in German. In the older age groups the proportion of pronominal expressions varies between 6-10% in Russian and decreases to 3% in German. Bilingual children also use 0PROs in both languages, to a very low degree though, at 0-2% in Russian and 0-3% in German.



	4-year-old biling	4-year-old biling	5-year-old biling	5-year-old biling	6-year-old biling	6-year-old biling
0PRO	2%	0%	0%	3%	2%	2%
PRO+DEM	9%	18%	10%	3%	6%	3%
demNP	5%	0%	6%	0%	2%	0%
0VbareN / bareN	19%	10%	15%	0%	8%	2%
postVbareN / indefNP	11%	26%	34%	49%	38%	54%
preVbareN / defNP	49%	45%	35%	46%	43%	40%

* The „shared“ categories, e.g., 0VbareN (Russian) / bareN (German) or postVbareN (Russian) / indefNP (German), are not necessarily directly comparable and are combined for technical reasons (in order to present all categories in the same graph).

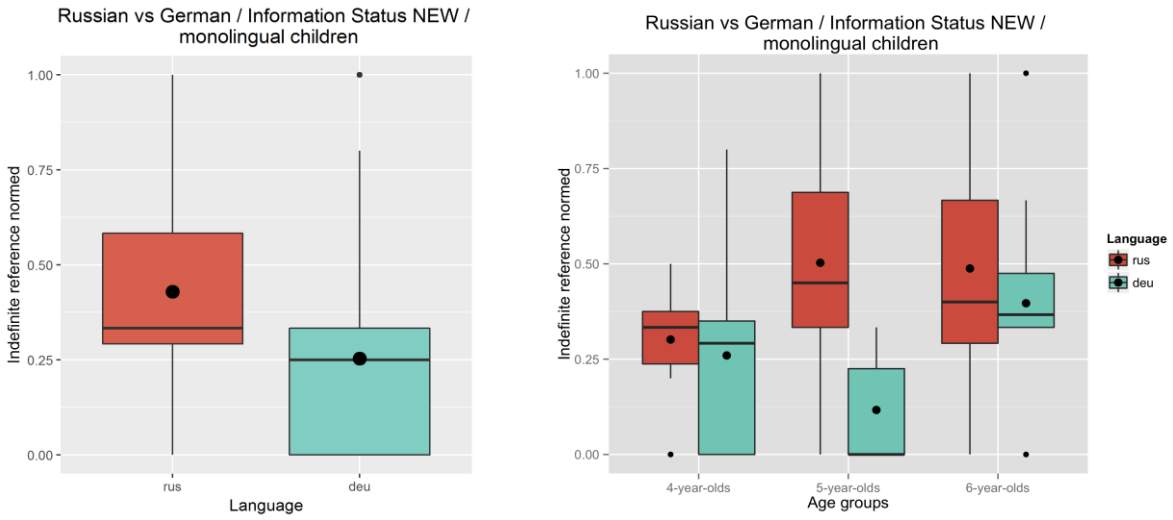
* Due to rounding the overall percentage in this graph is not always exactly 100%.

Figure 74. Types of referential expressions with information status NEW in Russian vs. German in bilingual children: distribution by language and age group (in %)

Below, the detailed statistical analysis of the respective categories is given with regard to crosslinguistic comparisons within and across age groups as well as in the whole samples. The use of zero reference for introducing new referents is not part of the statistical analysis because it is minimal, and the statistical analysis is not meaningful due to the small data size. In any case, the use of 0PROs was presented and illustrated in each language separately in the previous sections.

Indefinite nominal reference

As shown above, the number of postVbareNs in Russian and indefNPs in German in monolingual samples is quite different, 43% vs. 25% (see Figure 75a). Based on the results of the Wilcoxon test (W = 795.5, p = 0.007**), this difference is significant. Keeping in mind, however, that a part of 0VareNs (overall 9%) could also be added to these numbers, the difference between Russian and German may be even greater. Regardless of this, in Russian, monolingual children use significantly more indefinite referential expressions than their peers in German. What is also interesting is how the data are distributed: the distribution is near normal in Russian, whereas this is not the case in German. This shows that the use of postVbareNs (indefinite reference) for introducing referents is much more stable in Russian, whereas in German, many monolingual children do not use indefNPs at all.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 75. Indefinite nominal reference in Russian vs. German in monolinguals / Information status NEW

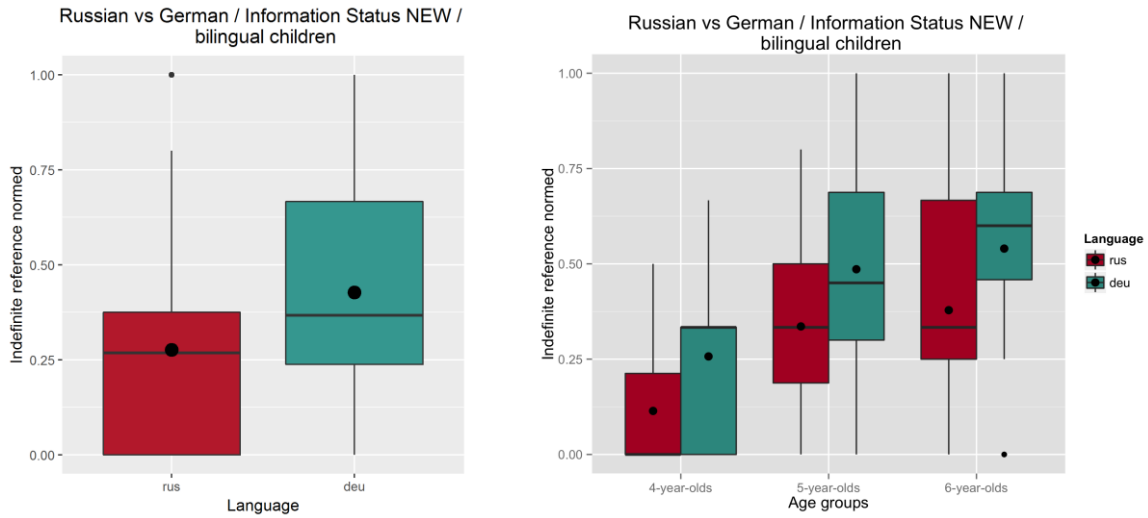
In the comparison of the age groups in the same samples (see Figure 75b), it can be observed that, here as well, the data distribution has the same pattern: in Russian, the data are distributed near normally in all age groups, whereas in German, they are close to the normal distribution only in the oldest age group (with two outliers). In 4- and 5-year-olds, indefNPs are still used very unsystematically. Overall, there are 30% of postVbareNs vs. 26% of indefNPs in 4-year-olds, 50% vs. 12% in 5-year-olds and 49% vs. 40% in 6-year-olds respectively, out of all referential expressions with the information status *new*. At the same time, the difference between Russian and German monolingual samples is only significant in 5-year-olds, with monolingual children using far more indefinite reference in Russian than in German (Wilcoxon test, $W = 118.5$, $p = 0.001$** for 5-year-olds, $W = 83.5$, $p = 0.51$ for 4-year-olds and Welch t-test $t(18.98) = 0.69$, $p = 0.5$ for 6-year-olds). Here as well, Russian monolingual children use a large number of 0VbareNs at age 4 (25%), some of which could be interpreted as indefinite. Thus, overall, the use of indefinite reference may be more pronounced in 4-year-old children in Russian than in German but cannot be confirmed statistically by the current analysis.

Although the developmental patterns were already presented in the previous sections for each language separately, it is worth looking at them in comparison. They seem to be different: in Russian, there is an increase between age 4 and 5 from 30% to 50%, whereas in German, there is first a decrease from 26% to 12% and then an enormous increase from 12% to 40% by age 6. As a reminder, no significant difference was found in the Russian monolingual sample, based on the analysis of variance (one-way ANOVA, $F(2, 32) = 2.21$, $p = 0.13$). In the German sample, the difference turned out to be significant (Kruskal-Wallis test, $x^2(2) = 7.21$, $p = 0.027$*), whereas the post-hoc tests confirmed the difference only between 5- and 6-year-olds (pairwise Wilcoxon tests, $p = 0.029$*). Due to the data

distribution, which is not normal in the German sample, a two-factorial analysis could not be performed for checking the interaction between the languages and age groups.

Therefore, it cannot be confirmed (or disproved) statistically that the developmental pattern in one language is significantly different from the pattern in the other language. At the same time, given that the developmental change between age 4 and 5 goes in the opposite direction (increasing in Russian vs. decreasing in German), the patterns can be interpreted as different. Also, the results do not demonstrate the predicted simultaneous increase in the use of indefinite reference between age 4 and 6 in either language.

Surprisingly, in the bilingual sample the situation is reversed (see Figure 76a). Here, the use of postVbareNs in Russian is much lower, and the data are not normally distributed, whereas the use of indefNPs seems to be quite established in German (at least in the analysis of the whole samples). Overall, the bilingual children use 28% of postVbareNs in Russian and 43% of indefNPs in German (out of all referential expressions with the information status *new*). The difference is significant according to the paired Wilcoxon test for dependent samples (V = 362, p = 0.001**). However, in contrast to the monolingual sample, the significant difference can be relativized if 0VbareNs were added to the overall number of postVbareNs, taking into account that a part of them could be indefinite and that bilingual children use quite a large number of them (14%, which is also higher than in monolingual children).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 76. Indefinite nominal reference in Russian vs. German in bilinguals / Information status NEW

In the crosslinguistic comparison within age groups as well (see Figure 76b), it can be seen that in each age group the number of indefNPs in German is always higher than the number of postVbareNs in Russian: 26% in German vs. 11% in Russian in 4-year-olds, 49% in German vs. 34% in Russian in 5-year-olds, and 54% in German vs. 38% in Russian in 6-

year-olds. Except for the youngest age group, the data are distributed near normally in both languages. Here the difference is only significant for 6-year-olds but not for 4- and 5-year-olds, whereas significance is only at the 5% level (paired Wilcoxon test, V = 30.5, p = 0.054 for the comparison of 4-year-olds; paired t-test for the comparisons of 5- and 6-year-olds, t (19) = -1.68, p = 0.11 and t (19) = -2.11, p = 0.048* respectively). Here as well, it should be remembered that a part of 0VbareNs could be added to the overall number of postVbareNs in order to minimize the difference (bilingual children use 19%, 15%, and 8% of 0VbareNs in the age groups of 4-, 5-, and 6-year-olds respectively).

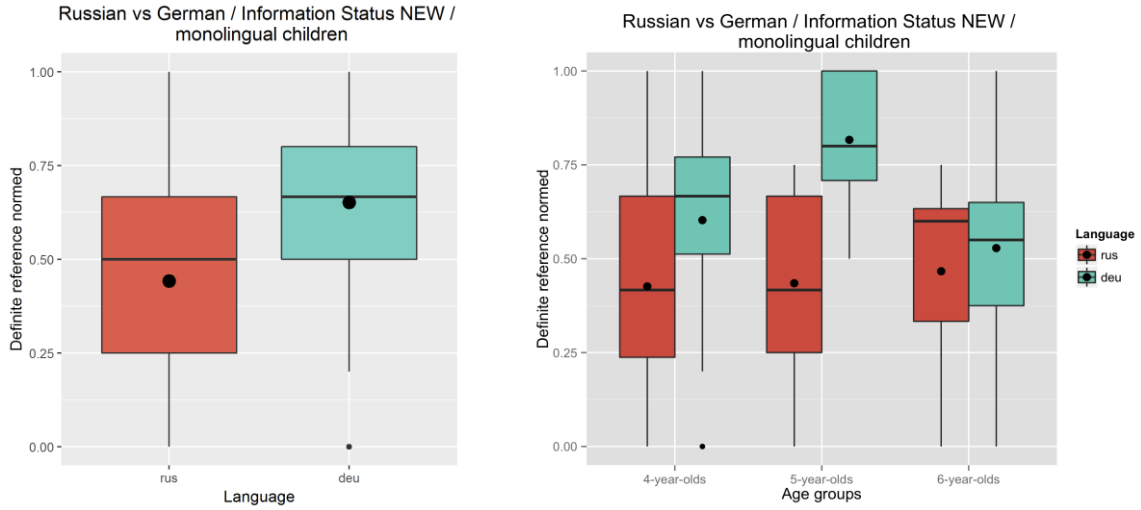
The developmental patterns in the use of indefinite reference in bilinguals are very similar in both languages. To recall, for the development within each sample, there is a significant difference in the use of the corresponding referential expressions between age groups in both samples, based on the results of the Kruskal-Wallis test (x^2 (2) = 12.7, p = 0.002** for the comparison between age groups in Russian and x^2 (2) = 10.33, p = 0.006** in German). The post-hoc pairwise Wilcoxon test comparisons confirmed the significant difference between 4- and 5-year-olds (p = 0.008**) and 4- and 6-year-olds (p = 0.003**) in Russian and between 4- and 6-year-olds (p = 0.004**) in German. Thus, overall, there is a constant parallel increase in the use of indefinite reference for introducing referents in both languages, which becomes significant already by age 5 in Russian and by age 6 in German as compared to age 4.

Although a two-factorial analysis of variance could not be performed with these data for checking the interaction between languages and age groups, it is quite likely that the difference is not significant. Alternatively, a difference test could be done, since the data in both languages are from the same children. The result confirms that there is no significant difference in the development in Russian and German over age (F (2, 57) = 0.02, p = 0.99).

Thus, except for the difference between Russian and German in the comparison of the whole sample and of the 6-year-olds, the results demonstrate language-specific performance but similar pragmatic development in the use of indefinite reference for introducing new referents. Although the percentage of indefNPs in German is always higher than the percentage of postVbareNs in Russian, given the relatively high percentage of 0VbareNs in Russian (part of which could be indefinite as well) the prevalence of indefNPs should not be considered as outstanding.

Definite nominal reference

With regard to the use of definite nominal expressions in the monolingual samples, one can see that it is rather stable in both samples (the data are distributed near normally). German monolingual children make use of definite nominal reference for introducing new referents more often than Russian ones: 65% of defNPs in German vs. 45% (preVbareNs and demNPs taken together) in Russian (see Figure 77a). This difference is significant, based on the results of the Welch t-test (t (65.086) = -3.19, p = 0.002**). However, taking into account a part of 0VareNs (overall 9%), which can be interpreted as definite, the difference between Russian and German may become less pronounced and perhaps insignificant.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 77. Definite nominal reference in Russian vs. German in monolinguals / Information status NEW

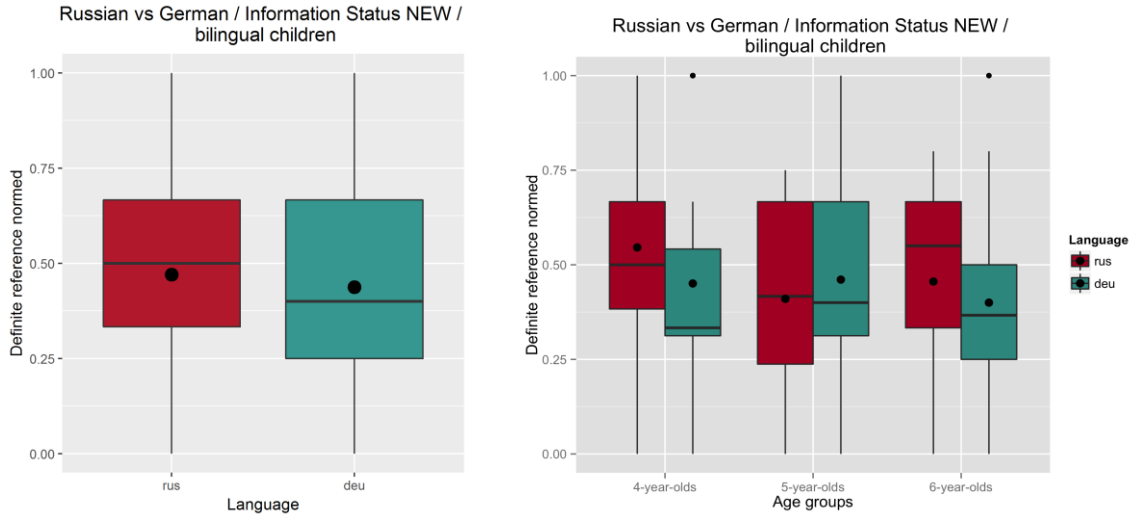
In the age group comparisons (see Figure 78b), the differences between Russian and German monolinguals seem to be rather pronounced in 4- and 5-year-old children: 43% vs. 60% in Russian and German 4-year-olds respectively, and 43% vs. 82% in 5-year-olds respectively (out of all referential expressions with the information status *new*). In 6-year-olds, the overall number of nominal definite reference and the data distribution are rather comparable (47% in Russian vs. 53% in German). Statistically, the difference is only significant for 5-year-olds though (Wilcoxon test, $W = 11$, $p < 0.001$***).

In the comparison of developmental patterns in the monolingual samples, it can be seen straight away that the use of definite nominal reference in Russian monolinguals is rather stable over age, varying between 43% and 47%, whereas in German monolinguals there is an important increase by age 5 (from 60% to 82%) with a subsequent decrease to 53% by age 6. Based on the analysis of variance in each sample, the difference in Russian is obviously not significant (one-way ANOVA, $F(2, 32) = 0.07$, $p = 0.93$) but significant in German (Kruskal-Wallis test, $x^2(2) = 7.52$, $p = 0.023$*), whereas the post-hoc pairwise Wilcoxon test comparisons confirm a significant difference only between 5- and 6-year-olds ($p = 0.025$*). Thus, the developmental shift occurs between age 5 and 6, leading to a significant decrease in the use of nominal definite reference.

Overall, the results for Russian and German monolinguals indicate different pragmatic development in the use of definite reference for introducing new referents, as there are significant differences between the languages in at least one age group and in the samples taken as a whole. At the same time, by age 6 the monolingual performance looks very similar in both languages.

In the bilingual sample, in contrast to the crosslinguistic comparison between the monolingual samples, the performance is very similar in both languages (see Figure 78a): 48% of preVbareNs and demNPs in Russian vs. 44% of defNPs in German (out of all referential expressions with the information status *new*). The difference is minimal and is not significant (paired t-test, t (59) = 0.73, p = 0.47). In the comparisons within age groups (see Figure 78b), the differences between Russian and German are not very pronounced: 54% vs. 45% in 4-year-olds, 41% vs. 46% in 5-year-olds and 45% vs. 40% in 6-year-olds in Russian and German respectively. Neither difference within age groups is significant, based on the results of the paired t-tests (t (19) = 1.44, p = 0.17 for 4-year-olds; t (19) = -0.5355, p = 0.60 for 5-year-olds; and t (19) = 0.76, p = 0.46 for 5-year-olds).

With regard to developmental patterns, it is also quite obvious that the pragmatic development in bilinguals is similar in both languages. The analysis of variance in each language showed that the difference across age groups is not significant (one-way ANOVA, F (2, 57) = 1.40, p = 0.25 for Russian; F (2, 57) = 0.24, p = 0.78 for German). A two-factorial analysis of variance (interaction between languages and age groups) shows that there is no significant difference between development over age in the analyzed languages (two-way ANOVA for dependent samples, F (1, 58) = 0.12, p = 0.73).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

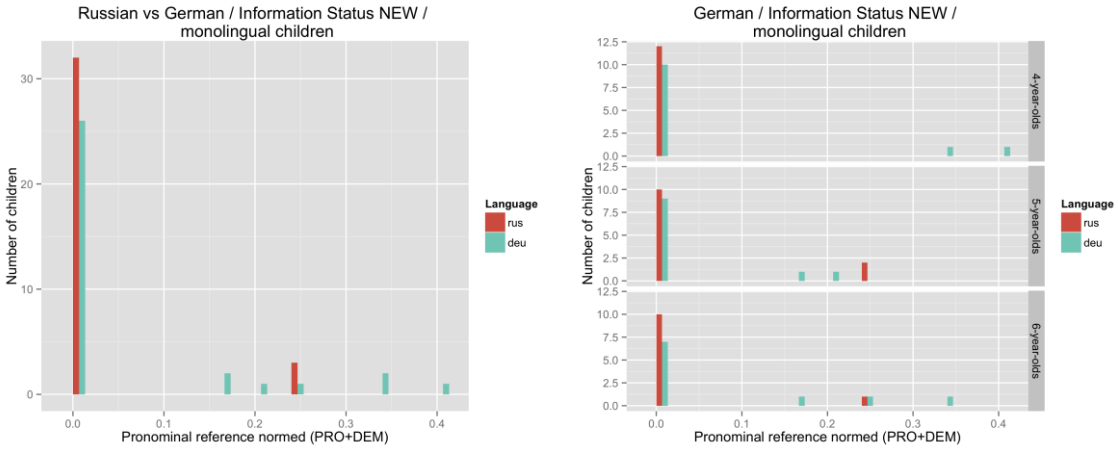
Figure 78. Definite nominal reference in Russian vs. German in bilinguals / Information status NEW

Thus, in contrast to the results for monolinguals, the results for bilinguals indicate similar performance and development in the use of definite nominal reference for introducing new referents.

Pronominal reference

A short crosslinguistic comparison can be done with regard to the pronominal reference (PROs and DEMs) used for introducing new referents. Although children do not use these referential expressions often, they are still present in both languages to a low degree (see Figure 79a). In the monolingual samples, these are 2% of PROs and DEMs in Russian (used only by 3 out of 35 children) and 6% of PROs and DEMs in German (used by 7 out of 33 children), whereas Russian children do not use DEMs at all and German ones use both DEMs and PROs. The difference between the samples is not significant, based on the Fisher test ($p = 0.18$).

In the within-age-group comparisons, the differences are also not striking, although 4-year-old children do not use pronouns in Russian at all (see Figure 79b). According to the results of the Fisher test, the difference between the languages is not significant in either age group ($p = 0.48$, $p = 1$, and $p = 0.31$ in 4-, 5-, and 6-year-olds respectively). Given that the data size is rather small, no further statistical analyses were done.



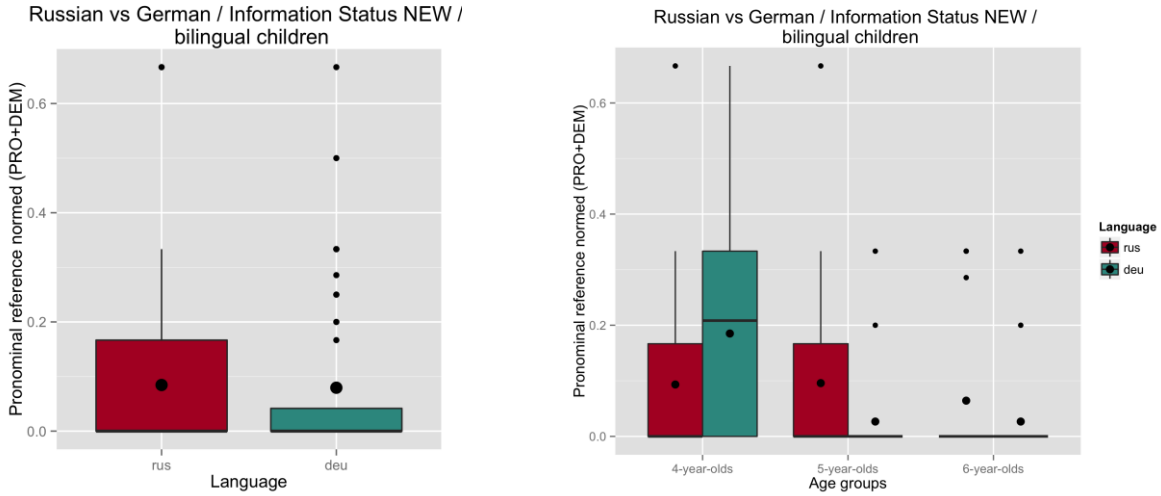
a. Whole samples

b. Age groups

Figure 79. Pronominal reference (PROs+DEMs) in Russian vs. German in monolinguals / Information status NEW

In the bilingual sample, the distribution of pronominal expressions is slightly different, as compared to the monolingual sample (see Figure 80a). Here, more children use pronominal reference in both languages to a higher degree: 8% in Russian and 7% in German, out of all referential expressions with the information status *new* in the corresponding languages. This difference is obviously not significant (paired Wilcoxon test, $V = 162$, $p = 0.74$).

The distribution varies slightly across age groups, but children of all ages continue to use PROs and DEMs to some degree, whereas most of them are used at age 4 (9% in Russian vs. 18% in German); at age 5, 10% in Russian and only 3% in German; at age 6, 6% in Russian and 3% in German. However, the differences are not significant in either age group, based on the results of the paired Wilcoxon tests ($V = 23.5$, $p = 0.13$; $V = 25$, $p = 0.07$; $V = 9$, $p = 0.20$ in 4-, 5-, and 6-year-olds respectively).



*The large dot represents the mean value of a group.

a. Whole samples b. Age groups

Figure 80. Pronominal reference (PROs+DEMs) in Russian vs. German in bilinguals / Information status NEW

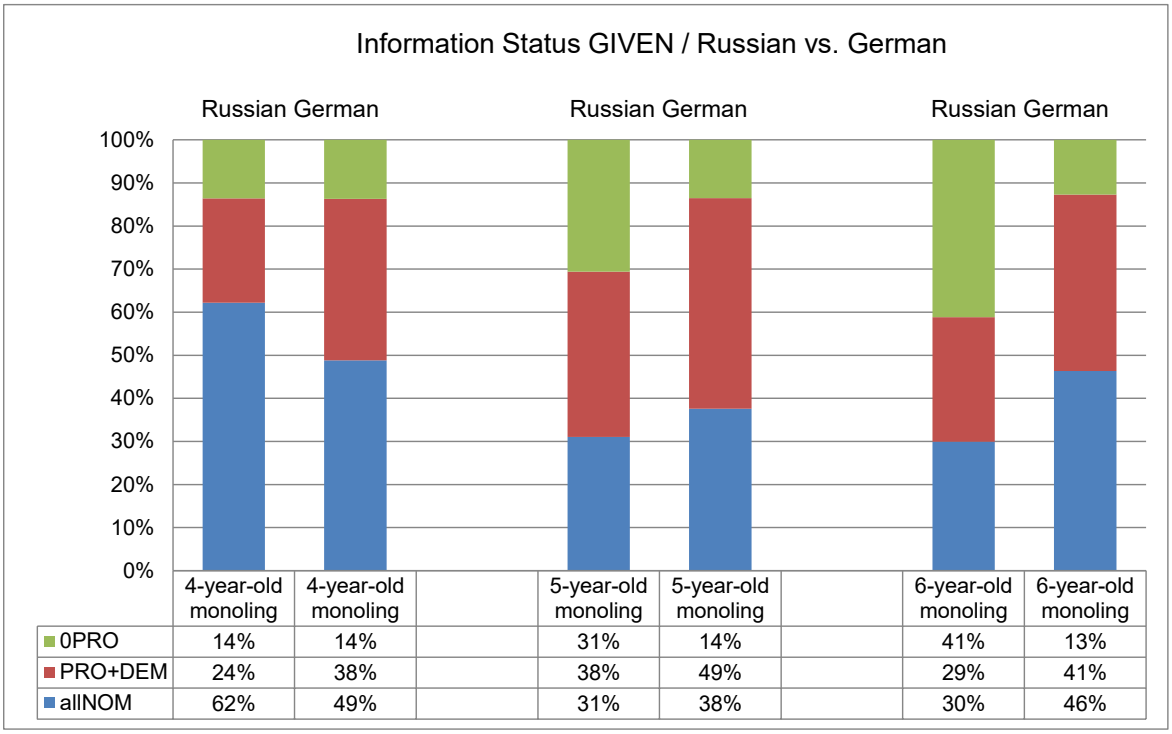
What is interesting here is that the developmental pattern is not parallel in Russian and German. Bilingual children significantly reduce the use of pronominal expressions by age 5 in German from 19% to 3% but keep almost the same number of PROs in Russian, 9% at age 4 and 10% at age 5. The analysis of variance in German showed a significant difference across age groups with a high degree of confidence (Kruskal-Wallis test, $x^2(2) = 14.74$, $p < 0.001$***), and the post-hoc tests confirmed the difference between 4- and 5-year-olds and between 4- and 6-year-olds (pairwise Wilcoxon tests, $p = 0.008$** for both comparisons). In Russian, bilingual children slightly reduce the use of PROs by age 6 (from 10% at age 5 to 6% at age 6, the use of PROs becoming occasional). However, based on the results of the Kruskal-Wallis test, the analysis of variance could not confirm the significance of this difference ($x^2(2) = 0.47$, $p = 0.79$). A two-factorial analysis of variance could not be performed for these data to check the interaction between languages and age groups. Instead, a difference test was performed for the bilingual sample, showing a significant difference in development in Russian and German over age ($F(2, 57) = 5.03$, $p = 0.01$*).

These results indicate different development over age with regard to the pronominal reference used for introducing new referents in Russian and German in bilinguals. At the same time, the patterns go in the same direction in both languages, consequently decreasing the use of pronominal reference with age and heading towards an overall reduction to the minimum.

7.2.3.2 Maintenance of discourse referents (information status *given*)

In order to maintain discourse referents, children predominantly use nominal (definite) reference and different types of pronominal reference in both languages, varying their use in

each language. This was already shown in the previous sections in the analysis of referential types in each language separately. For the crosslinguistic analysis, larger categories were built in order to create comparable data sets. For the comparison of the use of nominal reference, all nominal referential expressions used in German, namely defNPs, bareNs, and very few indefNPs[81], are compared to all nominal referential expressions used in Russian, namely all types of bareNs plus demNPs. For the comparison of the pronominal use, PROs and DEMs in German are compared to PROs[82] in Russian; 0PROs in each language are compared as a separate category, as the use of zero reference is especially interesting for maintaining reference. The overall distribution of these categories in monolingual and bilingual samples can be seen in Figure 81 and Figure 82.



	4-year-old monoling	4-year-old monoling		5-year-old monoling	5-year-old monoling		6-year-old monoling	6-year-old monoling
0PRO	14%	14%		31%	14%		41%	13%
PRO+DEM	24%	38%		38%	49%		29%	41%
allNOM	62%	49%		31%	38%		30%	46%

* Due to rounding the overall percentage in ths graph is not always exactly 100%.

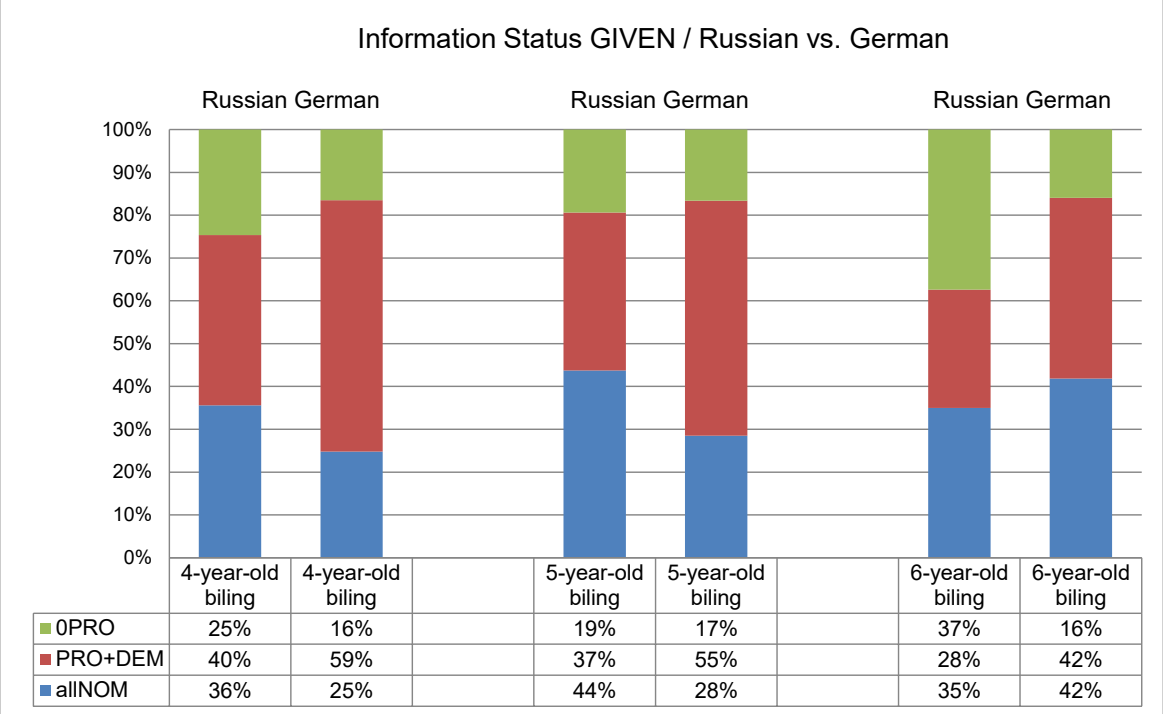
Figure 81. Types of referential expressions with information status GIVEN in Russian vs. German in monolingual children: distribution by language and age group (in %)

Different tendencies can be observed in monolingual children over age (see Figure 81). At age 4, both Russian and German monolinguals prefer to use nominal referential expressions for maintaining reference (62% and 49% respectively, out of all referential expressions with the information status *given* in the corresponding language), whereas PROs are also very

[81] IndefNPs and bareNs in German are included in the analysis in order to have a proper comparison with Russian, where some bareNs may be used as indefinite as well but could not be explicitly interpreted as such. The use of indefNPs and bareNs is completely marginal, if present at all (1% in the bilingual sample and none in the monolingual sample).
[82] DEMs are practically absent in Russian (1% in each sample). Therefore, in the description of results only PROs are referred to, even if DEMs are automatically included in the analysis while comparing overt pronominal reference in both languages.

frequent in German (38%). At age 5 and 6, Russian monolinguals use nominal, pronominal, and zero reference to an almost equal degree (31-38% at age 5 and 29%-41% at age 6), whereas German monolinguals slightly increase the use of pronominal reference (from 38% at age 4 to 49% by age 5) but not of zero reference (13-14% in different age groups). Thus, by age 5, Russian monolinguals seem to rely on 0PROs for maintaining reference as a good alternative to PROs and different NPs.

Bilingual children seem to rely more on pronominal reference (PROs and DEMs) in both of their languages from age 4 on, whereas the proportion of PROs and DEMs is always bigger in German than in Russian (42%-59% vs. 28%-40% respectively), as can be seen in Figure 82. They partially use zero reference in Russian instead (especially at age 4 and age 6, when they use 25% and 37% of 0PROs respectively, out of all referential expressions with the information status *given* in the corresponding languages). This is in part due to the more extensive use of nominal expressions (44% at age 5). The proportion of 0PROs in German does not change over age (16-17%).



	4-year-old biling	4-year-old biling		5-year-old biling	5-year-old biling		6-year-old biling	6-year-old biling
0PRO	25%	16%		19%	17%		37%	16%
PRO+DEM	40%	59%		37%	55%		28%	42%
allNOM	36%	25%		44%	28%		35%	42%

* Due to rounding the overall percentage in ths graph is not always exactly 100%.

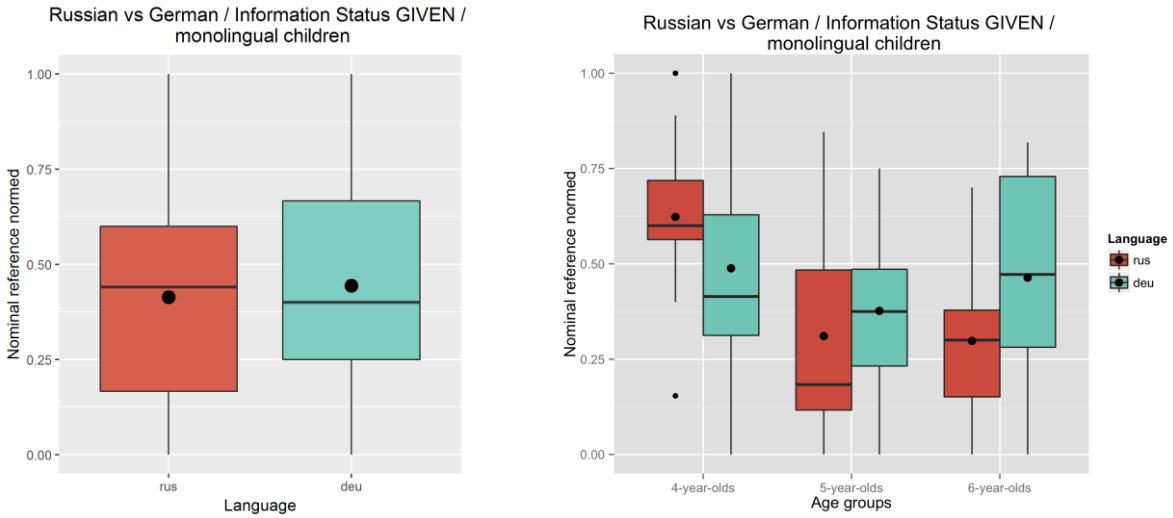
Figure 82. Types of referential expressions with information status GIVEN in Russian vs. German in bilingual children: distribution by language and age group (in %)

Below, the detailed statistical analyses are given with regard to the crosslinguistic comparisons within and across age groups.

Nominal reference

The use of nominal referential expressions for maintaining reference in both languages in the monolingual samples is rather similar (see Figure 83a). The data are similarly distributed

in both samples: the overall number of nominal expressions is 40% in Russian and 44% in German. The difference is clearly not significant (Welch t-test, t (65.817) = -0.44, p = 0.66). In the age group comparisons, the percentages are not so evenly distributed, as can be seen in Figure 83b. In Russian, monolingual children use far more nominal expressions than in German at age 4 (62% vs. 49%) and fewer at age 5 (31% vs. 38%) and age 6 (30% vs. 46%). However, based on the results of the Welch t-test, these differences are not significant (t (20.36) = 1.22, p = 0.24 for 4-year-olds; t (20.98) = -0.62, p = 0.54 for 5-year-olds; and t (16.56) = -1.45, p = 0.17 for 6-year-olds).



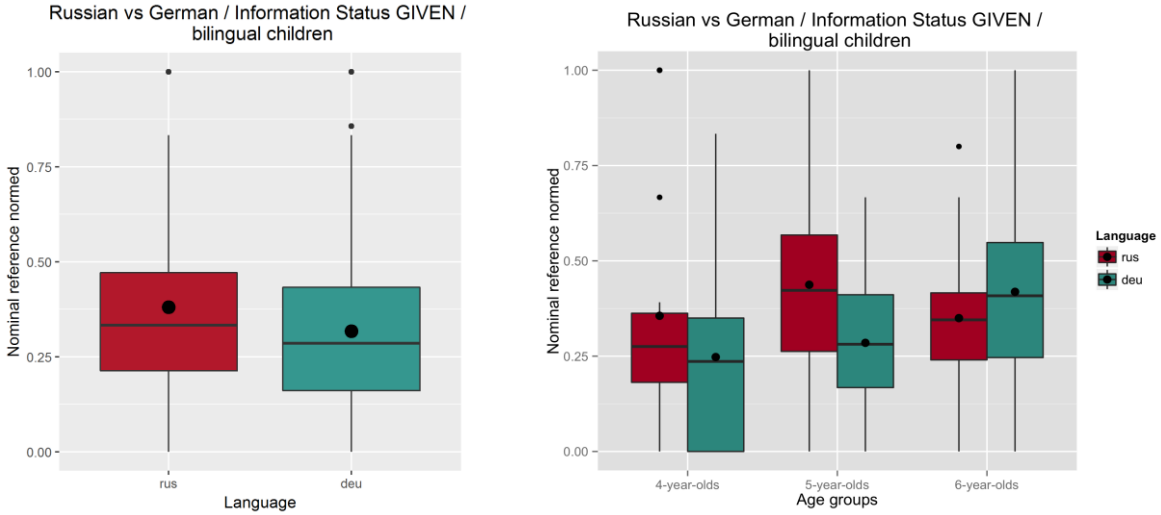
*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 83. Nominal reference in Russian vs. German in monolinguals / Information status GIVEN

With regard to the developmental patterns in the analyzed samples, it can be seen that, in the Russian monolingual sample, the number of nominal expressions decrease to a great extent already by age 5 (from 62% to 31%) and remains stable between age 5 (31%) and 6 (30%). In the German monolingual sample, on the other hand, there is a slight decrease between age 4 and 5 (from 49% to 38%) and a slight increase between age 5 and 6 (from 38% to 46%). The analysis of variance for each sample showed that only in the Russian sample the difference across age groups is significant (one-way ANOVA, F (2, 32) = 6.90, p = 0.003** for the Russian sample; F (2, 30) = 0.48, p = 0.62 for the German sample). The post-hoc tests confirmed the difference between 4- and 5-year-olds and between 4- and 6-year-olds (multcomp tests with adjusted p-value, p = 0.009** and p = 0.008** respectively). Given that the data present a good approximation to the normal distribution, two-factorial analysis of variance was performed. The result turned out to be not significant (two-way ANOVA, F (2, 62) = 1.95, p = 0.15). Thus, the results for the monolingual samples indicate similar pragmatic development in both languages.

In the bilingual sample, the distribution of nominal reference is slightly different, compared to the monolingual sample. Here as well, children use almost the same number of nominal referential expressions in Russian and German (38% and 31% respectively), as can be seen in Figure 84a; the data are furthermore similarly distributed. The difference between the languages is not significant (paired t-test, $t(59) = 1.67$, $p = 0.10$). In the age group comparisons, however, the differences between the languages are more visible (see Figure 84b): 36% vs. 25% in 4-year-olds, 44% vs. 28% in 5-year-olds, and 35% vs. 42% in 6-year-olds, in Russian and German respectively. These differences are significant for the comparisons between the languages in 4- and 5-year-olds, based on the results of the corresponding tests (paired Wilcoxon test, $V = 161$, $p = 0.038$* for 4-year-olds; paired t-test, $t(19) = 2.37$, $p = 0.029$* for 5-year-olds). In 6-year-olds the difference is not significant (paired t-test, $t(19) = -1.06$, $p = 0.30$).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 84. Nominal reference in Russian vs. German in bilinguals / Information status GIVEN

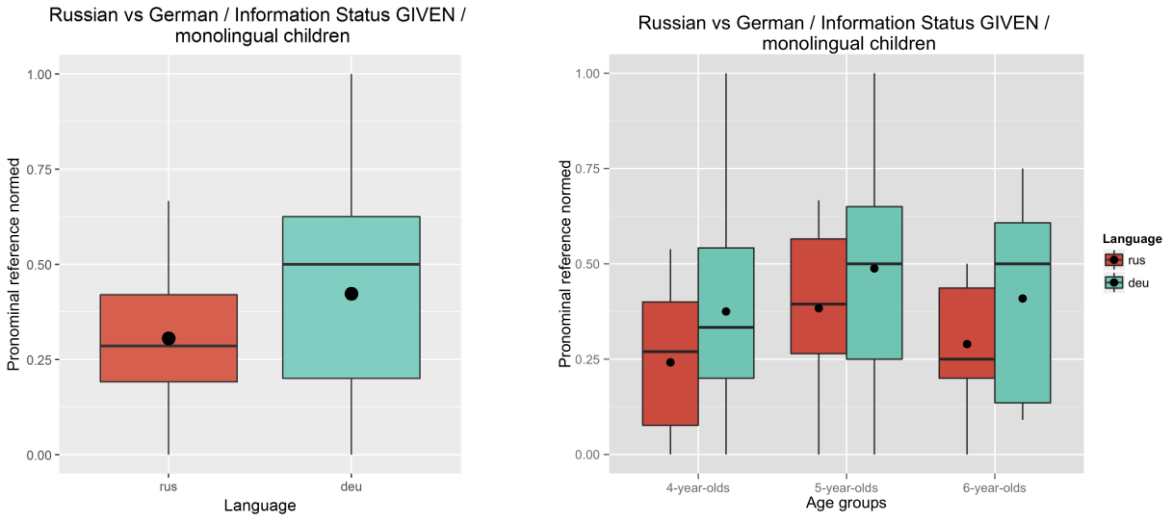
With regard to the developmental patterns in the crosslinguistic comparison, it can be seen that, in Russian, bilingual children stay more or less on the same level in the use of nominal expressions with a slight increase between age 4 and 5 (from 36% to 44% and then back to 35%), whereas in German, they constantly increase the use of nominal expressions with age: from 25% to 28% by age 5 and then to 42% by age 6. However, the analysis of variance showed no significant differences across age groups in either sample, based on the corresponding tests (one-way ANOVA, $F(2, 57) = 0.72$ $p = 0.49$ for Russian and Kruskal-Wallis test, $x^2(2) = 5.63$, $p = 0.06$ for German). A two-factorial analysis of variance could not be performed due to the data distribution. Instead, a difference test was performed. It revealed a significant difference between the languages over age ($F(2, 57) = 3.36$, $p = 0.042$*), although the level of significance is rather low.

According to these results, bilingual children do not show similar pragmatic development in Russian and German with regard to the use of nominal referential expressions for maintaining reference.

Pronominal reference

Both PROs and 0PROs can be used for reference maintenance in contexts where children use pronominal instead of nominal reference. At the same time, the use of 0PROs is generally more flexible and more acceptable in Russian than in German (see Chapter 4). Thus, the prediction from the crosslinguistic perspective is that Russian monolingual children would use fewer PROs and more 0PROs compared to German. Based on this prediction, one-sided statistical tests were applied for comparisons between samples as a whole or within age groups.

First, the overt pronominal reference was analyzed. As can be seen in Figure 85a, German monolinguals use more pronouns (PROs and DEMs) than Russian monolinguals do (42% vs. 31% respectively, out of all referential expressions with the information status *given* in the corresponding language); the data distribution is near normal in both samples. This difference is statistically significant (one-sided Welch t-test, t (55.9) = -2.01, p = 0.025*).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 85. Pronominal reference in Russian vs. German in monolinguals / Information status GIVEN

In within-age-group comparisons the situation is similar (see Figure 85b): in each age group German monolinguals use more pronouns (PROs and DEMs) than Russian monolinguals (38% vs. 24%, 49% vs. 38%, 41% vs. 29% in 4-, 5-, and 6-year-olds respectively), the data distribution is also near normal in all groups. However, the differences

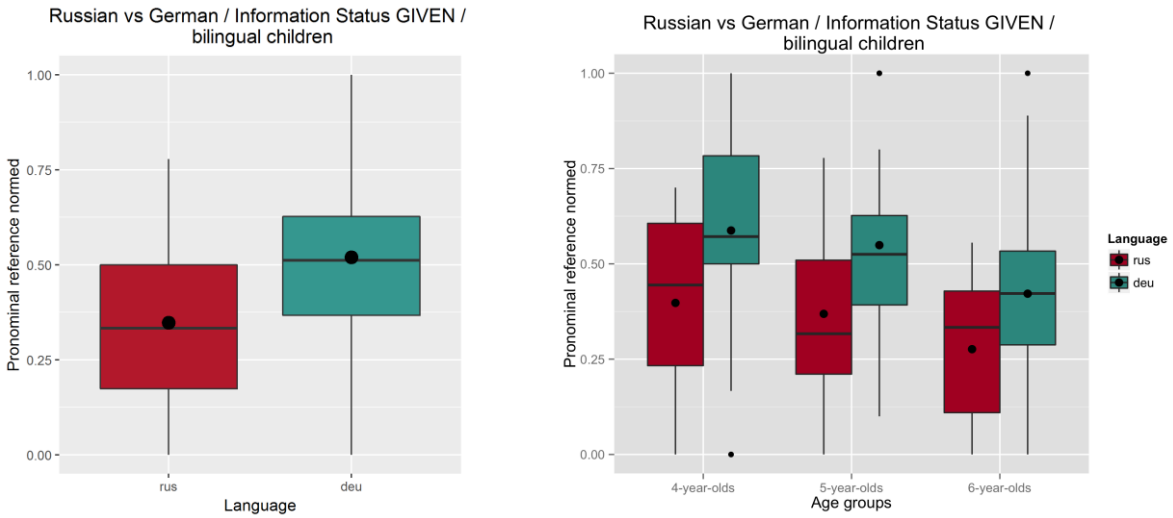
are not significant in either of the age groups (one-sided Welch t-test, t (18.07) = -1.34, p = 0.10; t (17.78) = -0.96, p = 0.18; t (15.17) = -1.25, p = 0.12).

As for developmental patterns in each sample, they are rather similar in both samples: in Russian and in German there is a slight increase in the use of pronouns by age 5 (from 24% to 38% in Russian and from 38% to 49% in German) and then a slight decrease by age 6 (from 38% to 29% in Russian and from 49% to 41% in German). The analysis of variance showed no significant difference across age groups in either sample (one-way ANOVA, F (2, 32) = 1.8, p = 0.18 for Russian and F (2, 30) = 0.46, p = 0.63 for German). Thus, no significant developmental shift occurs in either sample between the age 4 and age 6. Furthermore, a two-factorial analysis of variance showed no significant interaction between languages and age groups (two-way ANOVA, F (2, 62) = 0.02, p = 0.98).

Overall, given no significant differences between the samples in any within- or across-age-group comparisons, the results for monolinguals indicate similar pragmatic development in both languages with regard to reference maintenance with overt pronominal expressions. At the same time, there is no constant increase over age, predicted for the analyzed age range. Furthermore, although Russian monolinguals always use fewer PROs than German monolinguals, as predicted for the analyzed age range, the difference is not significant in either age group.

In the bilingual sample, similarly to the monolingual samples, children use more pronouns (PROs and DEMs) in German than in Russian, 52% vs. 35%, out of all referential expressions with the information status *given* in the corresponding language (see Figure 86a). This difference is statistically significant with a high degree of confidence (one-sided paired t-test, t (59) = -4.44, p < 0.0001***). In the age group comparisons, one can see here as well that in each age group children use more pronouns in German than in Russian (see Figure 86b): 59% vs. 40%, 55% vs. 37%, and 42% vs. 28% in 4-, 5-, and 6-year-olds respectively. Differences in all within-age-group comparisons are significant based on the results of the one-sided paired t-tests (t (19) = -2.54, p = 0.01** in 4-year-olds; t (19) = -2.76, p = 0.006** in 5-year-olds; t (19) = -2.28, p = 0.017* in 6-year-olds).

With regard to the developmental patterns, however, the situation is different from the comparison of the monolingual samples, as bilingual children continuously decrease the use of overt pronouns in both languages (from 59% to 55% and to 42% in German and from 40% to 37% and to 28% in Russian). At the same time, the analysis of variance showed that the difference is not significant in either language (one-way ANOVA, F (2, 57) = 2.33, p = 0.11 for German and F (2, 57) = 1.69, p = 0.19 for Russian).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 86. Pronominal reference in Russian vs. German in bilinguals / Information status GIVEN

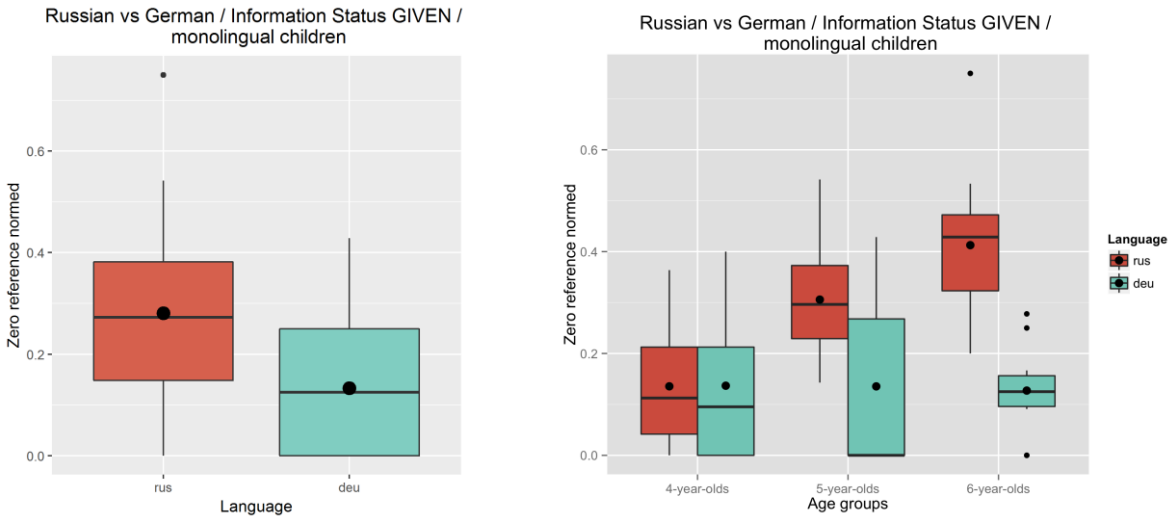
Thus, here as well, there is no significant developmental shift between age 4 and 6, although there seems to be a rather clear tendency to reduce the use of pronouns. A two-factorial analysis of variance showed that there is no significant difference between the languages over age (two-way ANOVA for dependent samples, $F(1, 58) = 0.22$, $p = 0.64$). Thus, these results indicate similar pragmatic development in both languages of bilingual children, remaining language specific.

Zero reference

Children of both monolingual samples use 0PROs, but, as predicted, Russian monolingual children use this type of reference more often than German monolingual children: 28% vs. 13% respectively, out of all referential expressions with the information status *given* in the corresponding language (see Figure 87a). It can also be observed that the data distribution is near normal in the Russian sample with only one outlier, whereas in the German sample the data are not normally distributed. The difference between the samples is statistically significant with a high degree of confidence (one-sided Wilcoxon test, $W = 864$, $p < 0.001$***).

In the age group comparisons (see Figure 87b), one can observe that 4-year-old children use 0PROs to an equal degree in both languages (14%), whereas 5- and 6-year-old Russian monolinguals use far more 0PROs than German monolinguals, 31% vs. 14% and 41% vs. 13% respectively, and the data distribution is near normal in the Russian monolingual sample in all age groups, whereas in the German monolingual sample it becomes near normal only in the group of 6-year-olds. The difference is clearly not significant for 4-year-olds, but significant for 5- and 6-year-olds (one-sided Wilcoxon test, $W = 76.5$, $p = 0.41$ for 4-year-

olds; W = 102.5, p = 0.013* for 5-year-olds; and one-sided Welch t-test, t (16.51) = 5.29, p < 0.0001*** for 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

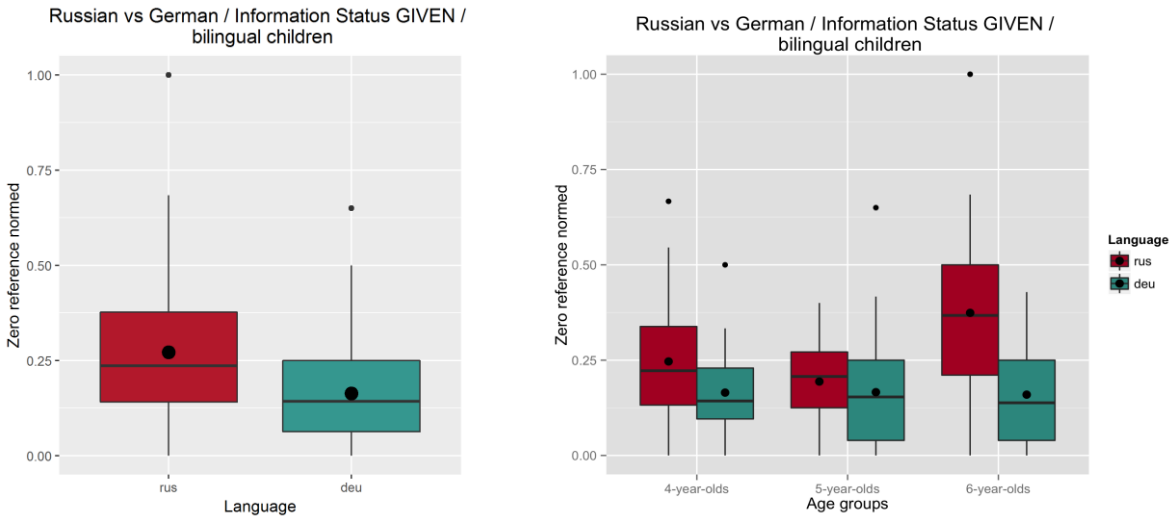
Figure 87. Zero reference in Russian vs. German in monolinguals / Information status GIVEN

With regard to the developmental patterns in the monolingual samples, there is a clear pattern in Russian monolinguals towards a more extensive use of 0PROs with age, from 14% to 31% by age 5 and 41% by age 6%, whereas German monolinguals keep using 0PROs at the same level in all age groups (between 13% and 14%). Only the data distribution changes over age. By age 6, given that the variation in the data is rather small (except for 3 outliers), almost all German monolingual children use 0PROs to a similar degree. As a reminder, the analysis of variance performed within each sample revealed no significant difference across age groups in German (Kruskal-Wallis test, x^2 (2) = 0.07, p = 0.96) but a significant difference with a high degree of confidence across age groups in Russian (one-way ANOVA, F (2, 32) = 12.9, p < 0.0001***). The post-hoc tests confirmed the significant difference for the comparisons between 4- and 5-year-olds and between 4- and 6-year-olds (multcomp tests with adjusted p-value, p = 0.01** and p < 0.001*** respectively). Thus, there is a significant developmental change (increase in the use of 0PROs) between age 4 and 5 in the Russian monolingual sample. The interaction between languages and age groups could not be checked statistically, as the data are not normally distributed in the German sample. However, the developmental patterns are clearly different in Russian and German.

Thus, the results for monolinguals demonstrate language-specific performance and different development from age 5 with regard to the use of zero reference for maintaining referents in Russian and German. This corresponds to the specific prediction of predominant

and systematic use of zero reference in Russian monolingual children in comparison to the German ones.

In the bilingual sample, the overall performance appears similar as compared to monolinguals (see Figure 88a): bilingual children use more 0PROs in Russian than in German (27% vs. 16% respectively, out of all referential expressions with the information status *given* in the corresponding language), differing this time in that the data distribution is near normal in both languages, each with one outlier. The difference between Russian and German is significant with a high degree of confidence (one-sided paired t-test, t (59) = 3.43, p < 0.001***). In the age group comparisons (see Figure 88b), it can be seen that bilingual children always use more 0PROs in Russian than in German (25% vs. 16%, 19% vs. 17%, and 37% vs. 16% for 4-, 5-, and 6-year-olds respectively), whereas in all age groups and languages the data distribution is near normal with a couple of outliers. However, the difference in within-age-group comparisons is significant only for the group of 6-year-olds (one-sided paired t-test, t (19) = 3.78, p < 0.001*** for 6-year-olds; t (19) = 1.65, p = 0.058 for 4-year-olds; and t (19) = 0.55, p = 0.29 for 5-year-olds). Thus, the bilingual performance is rather similar in both languages at age 4 and 5 and becomes significantly different only by age 6.



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

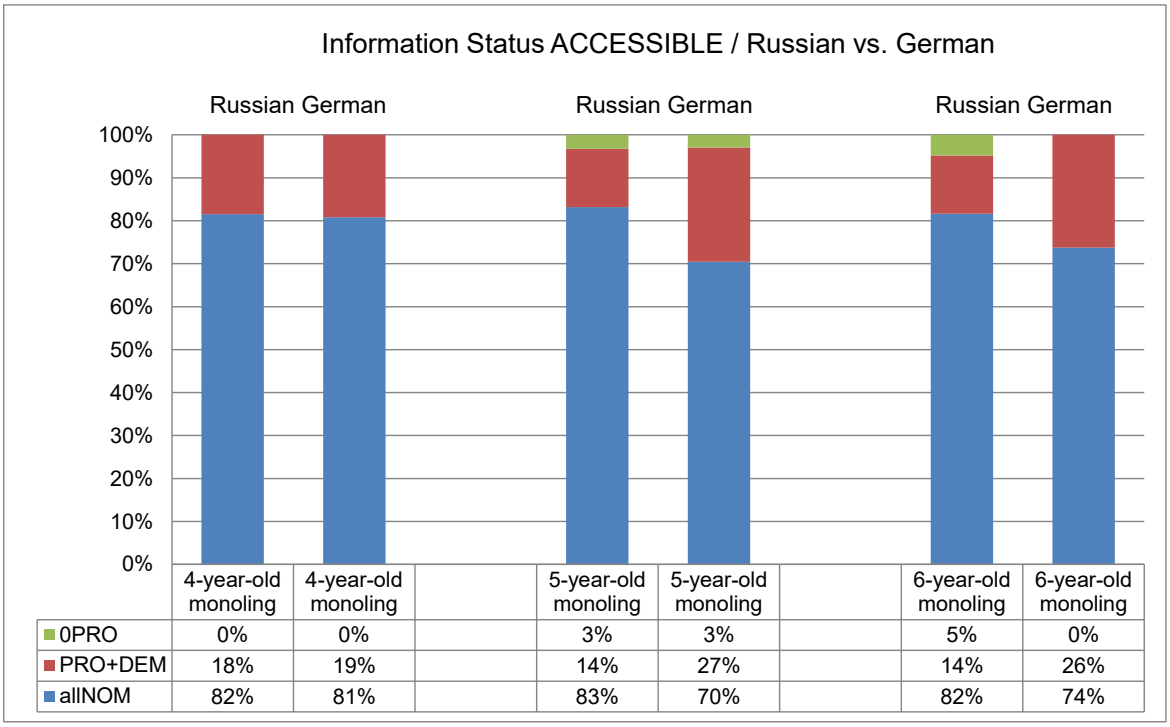
Figure 88. Zero reference in Russian vs. German in bilinguals / Information status GIVEN

With regard to the developmental patterns in each language in bilinguals, it can be observed that the use of 0PROs in Russian slightly decreases by age 5 (from 25% to 19%) and then increases again to 37% by age 6. As a reminder, the analysis of variance across age groups showed a significant difference in Russian (one-way ANOVA, F (2, 57) = 4.75, p = 0.012*). The post-hoc tests confirmed a significant difference only for the comparison between 5- and 6-year-olds though (multcomp tests with adjusted p-value, p = 0.011*,

p = 0.66, and p = 0.09 for the comparison between 5- and 6-year-olds, 4- and 5-year-olds, and between 4- and 6-year-olds respectively). In German, the use of 0PROs remains at the same level in all age groups (between 16% and 17%), and the variance across age groups is clearly not significant (one-way ANOVA, F (2, 57) = 0.01, p = 0.99). The interaction between languages and age groups was checked with two-way ANOVA for dependent samples. The analysis showed no significant difference between the languages over age (F (1, 58) = 3.07, p = 0.085). Thus, the results for bilinguals indicate similar pragmatic development with regard to the use of zero reference for maintaining referents in both languages.

7.2.3.3 Reintroduction of discourse referents (information status *accessible*)

In contrast to reference introduction and maintenance, both monolingual and bilingual children in the analyzed samples reintroduce discourse referents predominantly by nominal (definite) referential expressions in Russian and German. The overall distribution of nominal and pronominal reference can be seen in Figure 89 (monolinguals) and Figure 90 (bilinguals) below.



	4-year-old monoling	4-year-old monoling		5-year-old monoling	5-year-old monoling		6-year-old monoling	6-year-old monoling
0PRO	0%	0%		3%	3%		5%	0%
PRO+DEM	18%	19%		14%	27%		14%	26%
allNOM	82%	81%		83%	70%		82%	74%

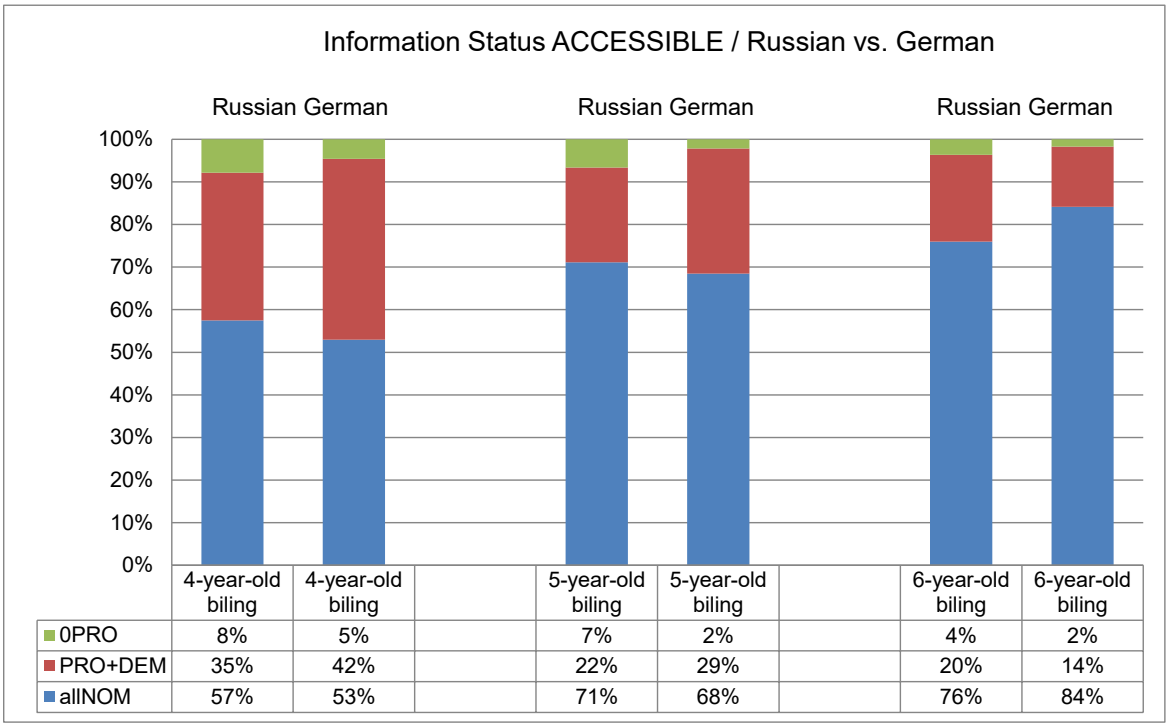
* Due to rounding the overall percentage in ths graph is not always exactly 100%.

Figure 89. Types of referential expressions with information status ACCESSIBLE in Russian vs. German in monolingual children: distribution by language and age group (in %)

Similarly to the analysis of referential expressions with the information status *new* or *given,* larger categories were built for the analysis of children's performance crosslinguistically. In the category of nominal reference, all nominal referential expressions

used in German, namely defNPs, bareNs, and very few indefNPs[83] with the information status *accessible* are compared to all nominal referential expressions used in Russian, namely all types of bareNs plus demNPs with the same information status. In the category of pronominal reference there are two subcategories, overt pronominal reference (PROs and DEMs in German vs. PROs in Russian) and zero reference (0PROs).

Both Russian and German monolingual children clearly prefer nominal reference for reintroducing referents in all age groups: 82%-83% in Russian and 70%-81% in German, out of all referential expressions with the information status *accessible* in the corresponding language (see Figure 89). Therefore, they use overt pronominal reference (PROs and DEMs) to a much lower degree also in all age groups: 14%-18% in Russian and 19%-27% in German. At the same time, monolinguals use almost no zero reference in either language (3%-5% in Russian and 0%-3% in German), showing a high degree of awareness for reintroducing referents into narration.



	4-year-old biling	4-year-old biling		5-year-old biling	5-year-old biling		6-year-old biling	6-year-old biling
0PRO	8%	5%		7%	2%		4%	2%
PRO+DEM	35%	42%		22%	29%		20%	14%
allNOM	57%	53%		71%	68%		76%	84%

* Due to rounding the overall percentage in ths graph is not always exactly 100%.

Figure 90. Types of referential expressions with information status ACCESSIBLE in Russian vs. German in bilingual children: distribution by language and age group (in %)

Bilingual children most frequently use nominal expressions in both of their languages for reintroducing referents: 57%-76% in Russian and 53%-84% in German, out of all referential expressions with the information status *accessible* (see Figure 90). At the same time, along

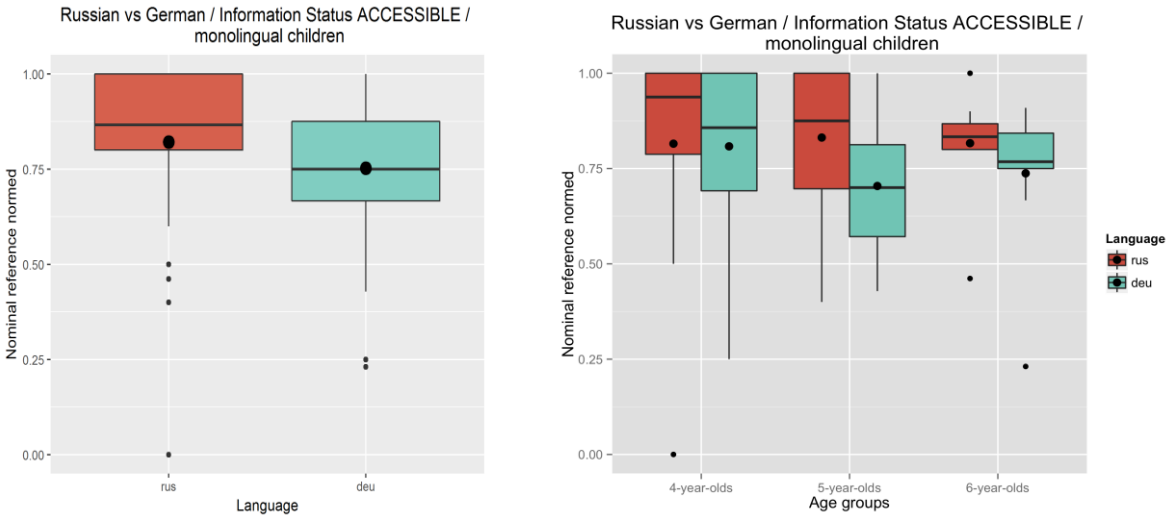
[83] IndefNPs and bareNs in German are included in the analysis in order to have a proper comparison with Russian, where some bareNs may additionally be used as indefinite but could not definitely be interpreted as such. The use of indefNPs and bareNs with the information status *accessible* is absolutely marginal (1-2% in each sample) though.

with nominals, they use quite a number of pronominals at age 4 as well (57% vs. 35% in Russian and 53% vs. 42% in German, nominals and pronominals respectively). Later on, they tend to give a clear preference to nominal referential expressions (71% and 76% in Russian and 68% and 84% in German at age 5 and 6 respectively). The use of zero reference is rather marginal in all age groups in both languages, although bilinguals use more 0PROs in Russian than in German in all age groups (4%-8% in Russian vs. 2%-5% in German).

The detailed statistical analyses of each category are presented below, with a focus on crosslinguistic comparisons of the monolingual and bilingual samples within and across age groups.

Nominal (definite) reference

In the monolingual samples, children use a large number of nominal referential expressions for reintroducing referents in each language to a similar degree: 82% in Russian vs. 75% in German, out of all referential expressions with the information status *accessible* in the corresponding language (see Figure 91a), with some differences in the data distribution. In German, the data distribution is near normal, whereas in Russian the data are not normally distributed. In this particular case, it means that many Russian monolingual children almost exclusively use nominal expressions for referent reintroduction in their narratives. The difference between the monolingual samples is not significant though, based on the results of the Wilcoxon test (W = 711.5, p = 0.057).



*The large dot represents the mean value of a group.

a. Whole samples b. Age groups

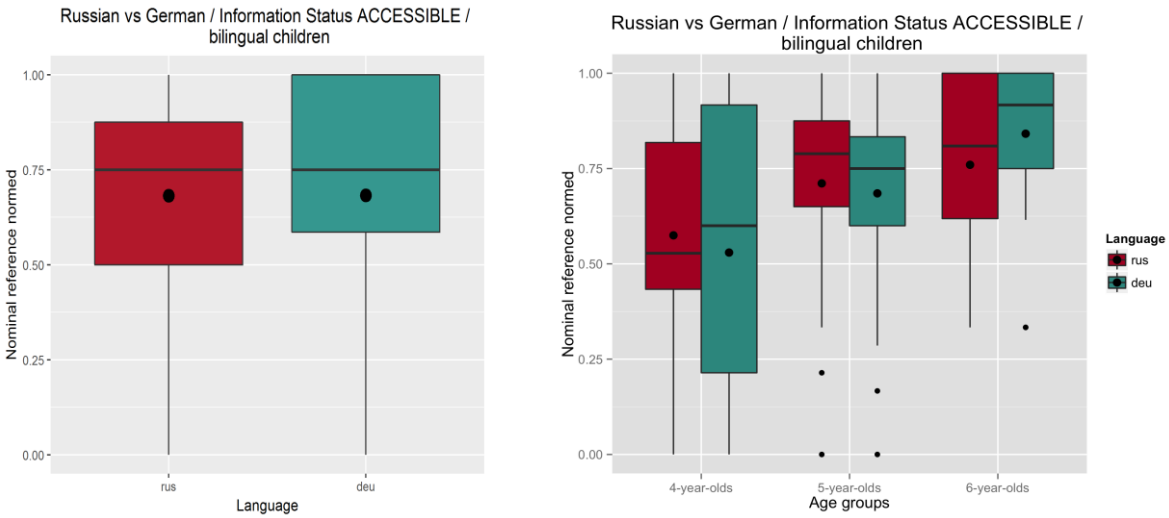
Figure 91. Nominal reference in Russian vs. German in monolinguals / Information status ACCESSIBLE

The distribution looks different in each age group (see Figure 91b): in the youngest age group children of both samples use nominal expressions almost equally (82% in Russian and 81% in German). Furthermore, the data are distributed similarly in both languages. In the group of 5-year-olds, Russian monolinguals use more nominal expressions than German monolinguals (83% vs. 70% respectively), whereas the data are near normally distributed in German. In the group of 6-year-olds, Russian monolinguals still produce more nominal expressions (82% vs. 74% respectively), but the data distribution in each language is much narrower, except for a few outliers in both groups. Statistically, the difference is not significant in either comparison within age groups, based on the results of the Wilcoxon test ($W = 83$, $p = 0.53$; $W = 82.5$, $p = 0.15$; $W = 76.5$, $p = 0.14$ for the comparisons within age groups of 4-, 5-, and 6-year-olds respectively).

With regard to the developmental patterns in Russian and German monolinguals, it can be seen that the overall number of nominal (definite) expressions hardly changes with age in Russian, varying between 82% and 83%. Only the data are distributed differently. In German, there is a decrease by age 5 (from 81% to 70%) and then a slight increase by age 6 (from 70% to 74%). However, none of these changes is statistically significant, based on the results of the analysis of variance across age groups in each language (Kruskal-Wallis test, $x^2(2) = 2.55$, $p = 0.28$ for German and $x^2(2) = 1.21$, $p = 0.55$ for Russian). Due to the data distribution, a two-factorial analysis of variance could not be performed. However, given that there are no significant differences in either comparison, it can be assumed that the developmental patterns in both languages are rather similar. Although the simultaneous increase of nominal reference, predicted for the analyzed age range, is not present, the number of nominal expressions in both languages is already very high at age 4, so that it is not surprising that there is no further increase.

Bilingual children show similar performance in Russian and German when their performance is compared in the whole sample, using 68% in each language, out of all referential expressions with the information status *accessible* in the corresponding language (see Figure 92a), with some differences in the data distribution. There is clearly no statistically significant difference between languages (paired Wilcoxon test, $V = 701$, $p = 0.92$).

In the age group comparisons (see Figure 92b), it can be observed that the overall number of nominal expressions in each language is similar within age groups: 57% vs. 53% in 4-year-olds, 71% vs. 68% in 5-year-olds, and 76% vs. 84% in 6-year-olds, in Russian and German respectively. The data are distributed similarly in both languages in all age groups, including outliers. Only in 4-year-olds is there a bigger variation in German than in Russian. Here as well, the fact that the data are not distributed normally in 6-year-olds means that almost all 6-year-old bilinguals use nominal expressions to the highest degree. The differences are not significant in all comparisons within age groups (paired t-test, $t(19) = 0.45$, $p = 0.66$ in 4-year-olds; $t(19) = 0.35$, $p = 0.73$ in 5-year-olds; and paired Wilcoxon test, $V = 701$, $p = 0.92$ in 6-year-olds).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

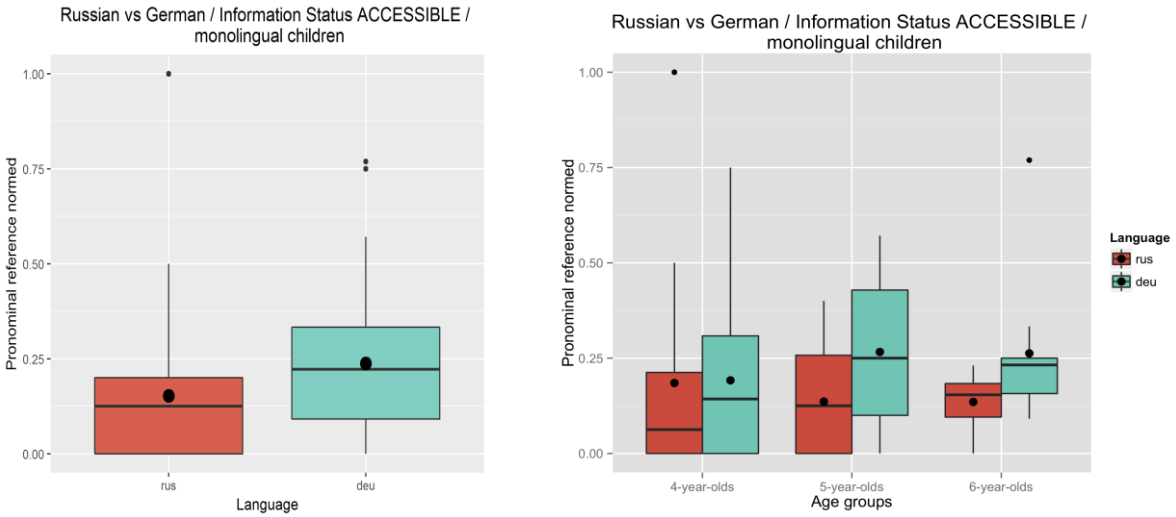
Figure 92. Nominal reference in Russian vs. German in bilinguals / Information status ACCESSIBLE

With regard to the developmental patterns, it can be observed that bilingual children continuously increase the overall number of nominal expressions with age in both languages: from 57% at age 4 to 71% and to 76% by age 5 and age 6 in Russian and 53% at age 4 to 68% and to 84% by age 5 and age 6 in German. Based on the analysis of variance across age groups in each language, the difference turned out to be significant in German but not in Russian (Kruskal-Wallis test, x^2 (2) = 7.79, p = 0.020* for German and x^2 (2) = 4.00, p = 0.14 for Russian). The post-hoc tests confirmed the significant difference between 4- and 6-year-olds (pairwise Wilcoxon tests, p = 0.039*). A two-factorial analysis of variance could not be performed due to the data distribution. Instead, the differences in patterns could be checked with the difference test. It showed no significant difference between performance in Russian and German (F (2, 56) = 0.58, p = 0.57). Thus, the results for bilinguals indicate similar pragmatic development in both languages as well as a predominant use of nominal (definite) reference and simultaneous increase in its use, as predicted for the analyzed age range.

Pronominal reference

The number of overt pronouns (PROs and DEMs) as opposed to nominal types of referential expressions is much lower in both languages. In monolinguals, it is 15% in Russian and 24% in German, out of all referential expressions with the information status *accessible* in the corresponding language (see Figure 93a). In Russian, the data are not normally distributed, whereas in German, the data distribution is near normal with only two outliers. German monolinguals use significantly more PROs and DEMs than Russian monolinguals, based on the results of the Wilcoxon test (W = 386.5, p = 0.027*).

However, in the comparisons within age groups, the differences become less evident (see Figure 93b). Although German monolinguals use more overt pronouns than Russian monolinguals in every age group (19% vs. 18% in 4-year-olds, 27% vs. 14% in 5-year-olds, and 26% vs. 14% in 6-year-olds), the difference is only significant for 6-year-olds (Wilcoxon test, W = 23.5, p = 0.028* for 6-year-olds; W = 61, p = 0.53 and W = 37.5, p = 0.13 for 4- and 5-year-olds respectively).



*The large dot represents the mean value of a group.

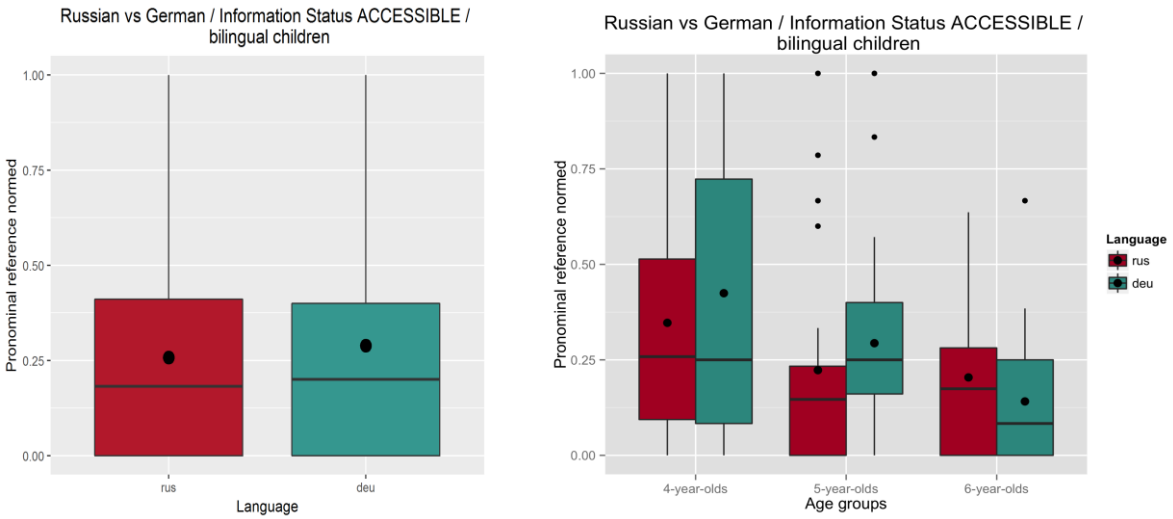
a. Whole samples b. Age groups

Figure 93. Pronominal reference in Russian vs. German in monolinguals / Information status ACCESSIBLE

With regard to the developmental patterns in monolinguals, it can be observed that there is little change over age in both languages, varying between 19% and 14% in Russian with a slight decrease by age 5 and between 19% and 27% in German with a slight increase also by age 5. These differences are not significant, based on the results of the analysis of variance across age groups in each language (Kruskal-Wallis test, $x^2(2) = 1.45$, $p = 0.48$ for German and $x^2(2) = 0.46$, $p = 0.79$ for Russian). Here as well, a two-factorial analysis of variance could not be performed due to the data distribution. However, given that there are no significant changes over age in any language and the difference within age groups is only significant in 6-year-olds, the development over age seems to be rather similar in both languages. At the same time, these results do not indicate the simultaneous decrease in the use of pronominal reference for reintroducing referents, predicted for the analyzed age range, the number of pronominal referential expressions being rather low at age 4 already.

In the bilingual sample considered as a whole, the number of overt pronouns is almost equal in each language: 26% in Russian and 29% in German, out of all referential expressions with the information status *accessible* in the corresponding language (see

Figure 94a), with a similar data distribution in both languages. The difference between the languages is not statistically significant (paired Wilcoxon test, V = 588.5, p = 0.49).



*The large dot inside each box represents the mean value of a group.

a. Whole samples b. Age groups

Figure 94. Pronominal reference in Russian vs. German in bilinguals / Information status ACCESSIBLE

The bilingual performance compared within each age group is less similar than compared within the whole sample (see Figure 94b): 35% in Russian vs. 42% in German in 4-year-olds, 22% vs. 29% in 5-year-olds and 20% vs. 14% in 6-year-olds respectively. The differences within age groups are not significant (paired t-test, t (19) = -0.75, p = 0.46 for 4-year-olds; paired Wilcoxon test, V = 45.5, p = 0.085 and V = 588.5, p = 0.49 for 5- and 6-year-olds respectively).

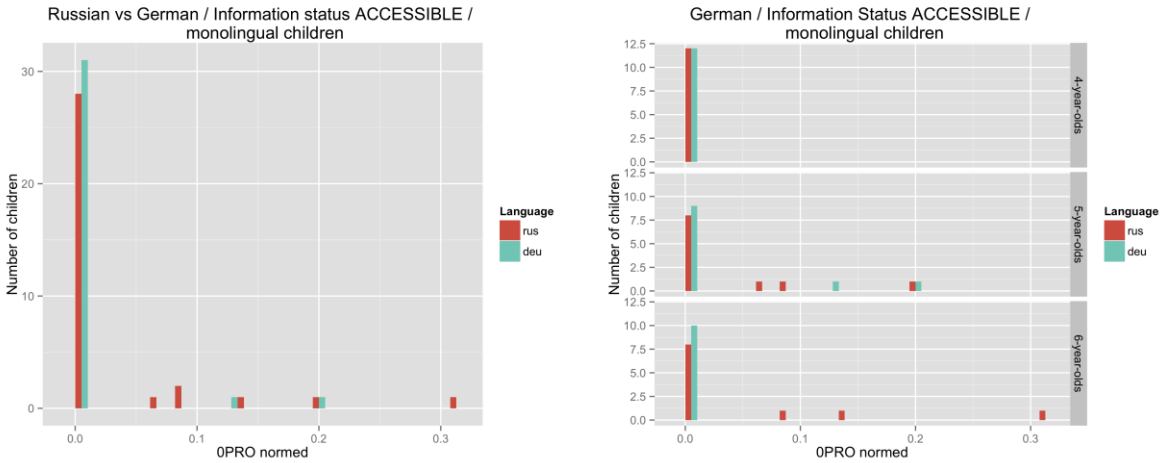
With regard to the developmental patterns in bilinguals, the situation is different as compared to monolinguals: children continuously reduce the number of overt pronouns in both languages with age: from 35% to 22% and 20% in Russian and from 42% to 29% and 14% in German. However, based on the results of the analysis of variance across age groups, the change is only significant in German (Kruskal-Wallis test, x^2 (2) = 6.56, p = 0.038* for German and x^2 (2) = 2.89, p = 0.24 for Russian). At the same time, the post-hoc tests (pairwise Wilcoxon tests) could not confirm significant differences across age groups anymore. Thus, the overall difference across age groups should be taken with caution and not be overestimated. A two-factorial analysis of variance could not be performed, as the data are not normally distributed. Instead, a difference test was performed. It confirmed the absence of a significant difference between Russian and German (F (2, 56) = 0.80, p = 0.45).

Thus, similarly to monolinguals, the results for bilinguals indicate similar pragmatic development with regard to the use of overt pronominal reference for reintroducing referents in both languages. Although this time there is a simultaneous decrease in the use of overt

pronominal reference, as predicted for the analyzed age range, it is not strong enough from a statistical point of view.

Zero reference

The use of the zero reference (0PROs) for reintroducing referents (which is not very suitable for this purpose) in both monolingual samples is minimal: 3% in Russian (n=5 out of 35 children) and 1% (n=2 out of 33 children) in German, out of all referential expressions with the information status *accessible* in the corresponding language (see Figure 95a). The difference is not significant (Fischer test, p = 0.26).



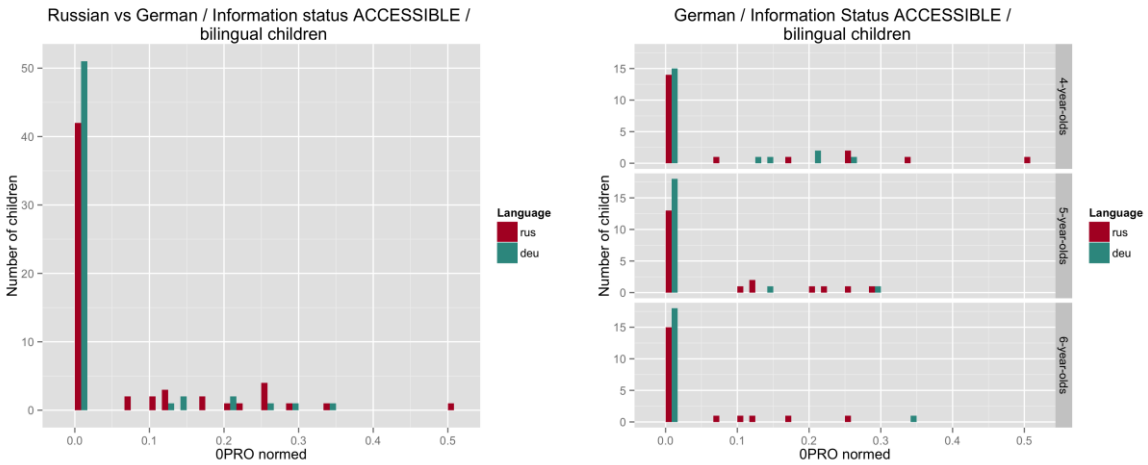
a. Whole samples

b. Age groups

Figure 95. Zero reference in Russian vs. German in monolinguals / Information status ACCESSIBLE

In the age groups considered separately (see Figure 95b), it can be seen that only 5-year-olds use 0PROs in German, whereas 5- and 6-year-olds use these in Russian. None of the differences between the languages in the whole samples and within the age groups is significant, based on the results of the Fisher test. Given the small data size, no further statistical tests were performed on these data.

In the bilingual sample, 0PROs are used a little bit more often in both languages than in the monolingual samples: 6% (n=18 out of 60 children) in Russian and 3% (n=9 out of 60 children) in German, out of all referential expressions with the information status *accessible* in the corresponding language. However, the overall number is still rather low (see Figure 96a). The difference between the languages is significant but only at the 5% level (Fisher test, p = 0.045*).



a. Whole samples b. Age groups

Figure 96. Zero reference in Russian vs. German in bilinguals / Information status ACCESSIBLE

In the age groups considered separately (see Figure 96b), none of the differences is significant (based on the Fisher test), although in all age groups bilingual children use slightly more 0PROs in Russian than in German: 8% vs. 5% in 4-year-olds, 7% vs. 2% in 5-year-olds, and 4% vs. 2% in 6-year-olds respectively, reducing their use with age. At the same time, the number of children using 0PROs is always lower in Russian than in German. Here as well, no further statistical tests were performed due to the small data size.

The results for both monolingual and bilingual children indicate similar pragmatic development with regard to the use of zero reference for reintroducing referents in both languages. At the same time, given the quite marginal use of 0PROs in all samples, no clear statement can be made about the developmental patterns of its use.

8 Summary of results and discussion

Sections 8.1 and 8.2 summarize the results of the study with regard to the grammatical and pragmatic use of referential expressions in child narrative discourse. The results are presented in relation to the corresponding research questions and hypotheses, with the most relevant results discussed in light of the previous research.

8.1 Grammatical use of referential expressions

In the analysis of the grammatical use of referential expressions, the focus of the analysis was on detecting general patterns in the use of different types of referential expressions in Russian and German. The aim was to verify whether all expected types of referential expressions are in place in the monolingual and bilingual samples in the given age range. A further aim was to detect differences at the grammatical level, including possible crosslinguistic interactions in the bilingual sample. Also, certain phenomena might have remained undetected in the analysis involving more subgroups and categories. It should be stressed that the overall number of particular referential expressions used by monolingual and bilingual children is not decisive *per se,* as there are additional grammatical and pragmatic features which might explain the use of this or that particular expression. Instead, differences and similarities in monolingual and bilingual performance and development observed at this stage of analysis provided the basis for a more detailed analysis that would verify to what extent the differences and similarities are related to the pragmatic use of referential expressions.

8.1.1 General distribution of referential expressions in Russian and German in monolingual and bilingual samples

The first group of research questions concerns the general distribution of referential expressions in monolingual and bilingual children in Russian and German as well as possible crosslinguistic interactions in bilinguals.

General distribution

With regard to the general distribution of referential expressions (RQgr1a), it is demonstrated that both monolingual and bilingual children use the whole range of referential expressions proper to the reference system of a corresponding language, as predicted in Hgr1a. In Russian, the most frequent types of referential expressions are bareNs, PROs, and 0PROs in both samples and all age groups. In German, these are defNPs, indefNPs, DEMs, PROs, and 0PROs.

The evidence for the lower number of 0PROs and the more extensive use of PROs and DEMs in German vs. the more extensive use of 0PROs and less extensive use of PROs in Russian confirms the language-specific use of reference. At the same time, it indicates that referential expressions should not be compared in isolation, but rather referential systems as a whole should be considered. For example, if we assume that children use pronominal reference in basically the same conditions, then, given that the use of 0PROs in German is restricted, most probably, children will use another pronominal (and not nominal) type instead. In Russian, on the other hand, grammatical constraints are less restricted and allow the use of 0PROs, resulting in the production of fewer PROs.

In all samples, the types of referential expressions that were expected to be marginal for the analyzed type of discourse (possNPs and indefPROs in both languages, DEMs in Russian, and bareNs in German) are indeed hardly present in the data. The findings so far demonstrate that, in the age range between 4 and 6, bilingual children with L1 Russian and L2 German (AoO to the L2 with 3;3 at the latest and minimal LoE to the L2 of one year, i.e., following the 2L1 path of acquisition) use the same range of referential expressions proper to the target languages, as compared to monolingual children of the same age.

These results are consistent with earlier studies, providing evidence for a wide range of referential expressions already used by age 4 or even earlier by monolingual and bilingual children in the narrative discourse in different languages (e.g., Aksu-Koç & Nicolopoulou 2014; Bamberg 1987, 1994; Berman & Slobin 1994; Hickmann & Hendriks 1999; Gagarina 2012; Guetiérrez-Clellen 1993; Gülzow & Gagarina 2007; Karmiloff-Smith 1987; Nicolopoulou et al. 2011; inter al.). At the same time, the wide range of referential expressions does not guarantee the appropriate use of referential expressions in the discourse, as was repeatedly shown by different studies and is discussed later in this chapter in more detail.

Crosslinguistic interactions

With regard to the possible crosslinguistic interactions (RQgr1b), only minor irregularities are observed in the use of referential expressions which were considered to be potential candidates for crosslinguistic interference in bilingual children, specifically for the more extensive use of indefNPs and DEMs in Russian as well as bareNs, PROs, and 0PROs in German. Indeed, bilingual children of different age groups use these referential expressions, but the differences are not significant in any monolingual comparison in Russian and are only marginally significant in German (for 6-year-olds in the use of bareNs; for 4-year-olds in the use of PROs). Additionally, the observed peculiarities in the bilingual performance are not necessarily explained by crosslinguistic interference, since monolingual children use these types of referential expressions as well, albeit to a lesser degree. Furthermore, the findings with regard to the use of bareNs in German show that Russian-German bilinguals can cope with the article system in German soon after being exposed to L2 German (the youngest children of the sample having been exposed to German for only one year).

If we assume that bilinguals are guided by transfer from their L1 with regard to the use of PROs in German, then bilingual children with L1 Russian should be using more PROs than DEMs from the beginning, since PROs are perfectly appropriate in German. However, the assumed crosslinguistic interference from Russian cannot explain the excessive use of DEMs in the youngest age group. On the contrary, the use of DEMs speaks in favour of the 2L1 acquisitional processes, since this type of referential expression is a default one in German (as discussed in Chapter 4). If one considers the acquisition of referential expressions in monolingual children prior to age 4, one would see that at age 2-3 they use DEMs almost exclusively (Gülzow & Gagarina 2007) and continue to use them along with PROs to almost the same degree at age 5 and 6. The bilingual children in the analyzed sample were first exposed to L2 German later than German monolingual children whose LoE is equal to the chronological age. Therefore, bilingual children might undergo certain stages of language acquisition later than monolingual children, also with regard to the acquisition of referential expressions. Remarkably, the positive transfer from Russian would bring bilingual children faster to the more target (adult-like) use of pronominal reference when PROs are used almost exclusively in contrast to child discourse (see Gagarina 2008; Gülzow & Gagarina 2007 for the comparison of child and adult use of pronouns in this particular type of narrative discourse). However, this is not the case for children in the analyzed sample, who seem to follow the 2L1 path of acquisition.

Furthermore, the findings on the use of 0PROs indicate that, in comparison to German monolinguals, Russian-German bilinguals do not use 0PROs more extensively in German. Although the overall use of 0PROs in German is significantly different in bilinguals and monolinguals taken as whole samples, within and across age groups no significant differences could be stated for either comparison.

At the same time, there is also unexpected evidence, namely the use of demNPs in Russian by bilingual children in the analyzed type of discourse. Only bilingual children occasionally use demNPs in all age groups. The differences in the comparisons with monolinguals in the whole samples and within the 4- and 5-year-old age groups turned out to be significant. Children do not seem to use demNPs for deictic or contrastive purposes in the analyzed type of discourse, and this referential expression was found neither in the Russian monolingual data in the same narrative context, nor in the bilingual and monolingual data in German. It seems that by using demNPs children rather try to mark definiteness by available grammatical means in the target language, combining a demonstrative pronoun with a bare noun to create a kind of a definite noun phrase. One careful interpretation of this finding could be the influence of German, where the concept of definiteness is grammaticalized, i.e., the in/definiteness of a referent is clearly marked by an article. As briefly discussed in Chapter 2, definiteness plays an important role in reference management in the discourse.

Thus, on the one hand, the hypothesis on possible crosslinguistic interactions (Hgr1b), which were predicted to be minor and age-specific, was supported for both languages. On the other hand, the specific predictions could not be fully confirmed: the unexpected use of demNPs in Russian appears to be significant and not age-specific, whereas the difference in

the use of bareNs and PROs in German between bilinguals and monolinguals is partly significant and age specific.

Overall, the findings on the general distribution of referential expressions in monolingual and bilingual children in Russian and German as well as on possible interactions in bilinguals speak in favour of the Separate Development Hypothesis (SDH) for language acquisition (de Houwer 1990, see Chapter 2). Bilingual children use the whole range of referential expressions in both languages, in, for the most part, a language-specific manner, according to the target systems of reference. They also demonstrate from early on the ability to separate the referential systems of the corresponding languages to a very high degree. At the same time, minor interactions between the languages that were found in the use of certain referential expressions support the non-autonomous version of SDH, allowing for crosslinguistic interactions to a certain degree. It should be stressed, however, that the indicated interactions (mostly not significant) are related only to the distribution of particular types of referential expressions and not to their linguistic forms and occur mostly in the youngest age group (4-year-olds).

8.1.2 Intralinguistic comparisons of monolingual and bilingual samples

The second group of research questions deals with intralinguistic comparisons of the monolingual and bilingual samples within and across age groups.

Performance and development over age

With regard to the research questions on intralinguistic comparisons, the first question (RQgr2a) refers to the similar performance and development over age in the grammatical use of referential expressions. Contrary to the hypothesis on similar performance and development in monolingual and bilingual children (Hgr2a), bilingual children differ significantly from monolingual ones in the use of several referential types in Russian as well as in German.

In Russian, the differences concern the use of bareNs, demNPs, and PROs when the whole samples (without age differentiation) are considered. At the same time, looking more precisely at the development in the use of reference across age groups and comparing bilingual and monolingual performance within each age group, the differences but also similarities become more distinct. One of the general observations is that, although bilingual children differ significantly from monolinguals at age 4 in Russian, they are very close to the monolingual performance at age 6 and often already at age 5. Interestingly, the overall distribution of referential expressions for 4-year-old bilingual children is much closer to the distribution for 5- and 6-year-old monolingual and bilingual children. Thus, although the presented results do not fully confirm the assumptions with regard to the similarity between bilingual and monolingual performance, they indicate an appropriate or even more advanced

development of bilingual children in Russian in the domain of reference from a grammatical point of view.

In German, the differences concern the use of defNPs by 4- and 5-year-olds, indefNPs by 5-year-olds, the use of PROs by 4-year-olds, and the use of bareNs by 6-year-olds. In all other within-age-group comparisons bilingual children show similar performance to that of monolinguals. In addition, it should be noted that significant differences in the use of in/defNPs by 4- and 5-year-old bilinguals, who use fewer defNPs and partly fewer indefNPs than monolinguals of the same age, are not compensated by the more extensive use of bareNs. This is evident because they do not use significantly more bareNs than monolingual children in these age groups. These findings suggest that bilingual children are indeed at an earlier stage of language acquisition process at least at age 4. At the same time, similar to Russian, the overall performance of bilingual children becomes rather comparable to that of monolingual children by age 6, and often already at age 5, confirming for the most part the hypothesis on similar performance and development (Hgr2a).

Regarding the use of pronominal reference in Russian and German (PROs, DEMs, and 0PROs), the findings from the current study confirm e.g., the findings of Gagarina (2008) for simultaneous bilinguals, who also showed similar performance compared to monolinguals at age 5 in both languages. This is a strong argument in favour of the 2L1 path of acquisition in both languages, at least by age 5, as predicted for the bilingual sample in the current study. Nonetheless, the interpretation of results remains difficult, given that findings from previous research are based on different methodologies or concern different age groups and languages and, therefore, cannot be directly compared with the findings of studies where other methodologies, other age groups, or other languages were used.

It should be noted that the results for the most types of referential expressions based on the analysis of the whole samples often do not coincide with the findings based on the comparisons within age groups in the analyzed age range. It indicates that the age range 4-6 may be too large to be analyzed as one group and that there are developmental changes within this age range. Thus, it seems essential to analyze the use of referential expressions within a smaller age range (e.g., one year) and to build several age groups, not only in order to trace the development within each sample but also in order to trace differences and similarities between monolinguals and bilinguals at every stage of their development. Moreover, the differences between bilingual and monolingual children were often significant only when the whole samples were compared. In the age group analysis, they became less pronounced or disappeared (partly also due to a smaller data size).

Developmental patterns and changes

With regard to the developmental patterns and changes (RQgr2b), monolingual and bilingual children demonstrate, for the most part, similar patterns in each of their languages, confirming the corresponding hypothesis (Hgr2b) and specific predictions. At the same time, there are exceptions in both languages. In Russian, these concern the use of 0PROs: monolinguals continuously increase the use of 0PROs, whereas in bilinguals the number of

0PROs remains almost at the same level across age groups. Despite these differences in the developmental patterns, bilinguals perform similarly to monolinguals by age 6 at the latest. In Russian, a significant developmental change could only be observed in the monolingual sample: significant increase in the use of 0PROs and significant decrease in the use of bareNs between age 4 and 5. This partly confirms the hypothesis on possible developmental changes in the analyzed age range, which were not expected to be significant though. In German, significant developmental changes occur in the monolingual as well as in the bilingual sample. In the monolingual sample, there is a decrease in the use of indefNPs between age 4 and 5 with a subsequent increase between age 5 and 6, with the latter being significant. In the bilingual sample, there is a considerable decrease in the use of DEMs between age 4 and 5 and a constant increase in the use of defNPs and indefNPs between age 4 and 6. However, the difference between age groups is only significant in the use of DEMs. This evidence contradicts the specific prediction that the developmental changes will be non-significant for the analyzed age range at this stage of analysis. At the same time, similarly to Russian, bilinguals show similar performance by age 6 at the latest, except for their use of bareNs, which is quite marginal in both samples though.

In addition, the general development in the use of DEMs and PROs in German shows interesting patterns. Although both monolingual and bilingual children reduce the use of DEMs (predicted for both samples), monolinguals prefer to use DEMs over PROs in all age groups. Bilinguals, on the other hand, definitely prefer to use more PROs than DEMs at age 5 and age 6. Only at age 4 do DEMs prevail over PROs in bilinguals (this was already related to the language acquisition process in German). The analysis of data from monolingual and bilingual narratives confirms that children consider DEM as a default pronominal form in German (Bittner 2010; Gülzow & Gagarina 2007, see also Chapter 4). DEM emerges earlier than PRO, and it takes several years until the use of PROs is established, sometimes even competing with the use of DEMs, as could be seen in monolingual children. Russian-German bilingual children seem to undergo the same acquisitional stage, regardless of their use of PROs in the L1, by using more DEMs at age 4, but they also start to use more PROs in German earlier than monolinguals, rapidly reducing the use of DEMs by age 5. This change is not necessarily explained by a possible influence of the L1. Rather, the significant decrease of DEMs at age 5 in bilingual children can be partly explained by the reorganization of the referential system as a whole and their “discovery” of the German PRO as a target personal pronoun comparable to Russian PRO. In monolingual children, the use of DEMs continues to increase and remains dominant in comparison to the use of PROs in the analyzed age range. Generally, the use of PROs does not increase significantly while the use of DEMs decreases. There is only a slight increase in the use of PROs and 0PROs at age 5 and no increase by age 6. Instead, there is a simultaneous decrease in the use of DEMs and increase of nominal reference (mostly defNPs). These observations do not confirm a further specific prediction concerning developmental patterns which stated that the decrease in the use of DEMs over age goes along with the simultaneous increase in the use of PROs.

The results on the development over age generally confirm the results from the previous research on different languages, e.g., Spanish and English, indicating that there are differences with regard to the referential accuracy (and fewer ambiguities) growing with age in the age range of 4- to 8-year-olds (cf. Guetiérrez-Clellen & Heinrichs-Ramos 1993; Klecan-Aker & Lopez 1985; Pellegrini et al. 1984). It was verified in more depth in the analysis of the pragmatic use of referential expressions.

8.1.3 Crosslinguistic comparisons of monolingual and bilingual samples

The third group of research questions deals with crosslinguistic comparisons of the grammatical use of referential expressions in the monolingual and bilingual samples within and across age groups. As a reminder, referential expressions were considered in more general categories: nominal reference (bareNs and demNPs in Russian vs. in/defNPs, demNPs, and bareNs in German), overt pronominal reference (PROs and DEMs), and zero reference (0PROs). This categorization was necessary due to typological differences between Russian and German referential systems, where similar types of referential expressions often have different functions and thus cannot be compared directly.

Performance and development over age

With regard to the performance and development over age in the crosslinguistic comparison (RQgr3a), the findings show that the use of nominal reference is rather similar in Russian and German monolinguals, but surprisingly not similar in Russian-German bilinguals. Monolinguals as well as bilinguals show language-specific performance, but only monolinguals show similar development. In bilinguals, however, different developmental patterns are observed in each of their languages (confirmed by two-way ANOVA), contrary to the respective hypothesis (Hgr3a).

The analysis of overt pronominal reference (PROs+DEMs) in the monolingual samples show no significant differences in either comparison (whole samples, within and across age groups, and interaction between age groups and languages). The same analysis in Russian-German bilinguals show a significant difference in the crosslinguistic comparison of the whole sample and in the comparison of 4- and 5-year-olds: bilingual children use pronouns to a higher degree in German than in Russian. Although the same tendency is observed in the monolingual samples, partly confirming the specific prediction made in this respect, the difference is significant only in the bilingual sample.

The analysis of 0PROs reveals even more differences. In the crosslinguistic comparison of the monolingual samples, the difference is significant in the whole samples and within age groups (5- and 6-year-olds). Only 4-year-olds perform similarly with respect to the use of 0PROs. Also in the comparison of Russian-German bilinguals, in Russian and German the difference in the use of 0PROs is confirmed in the comparison of the whole sample and in the 4- and 6-year-old age groups. Despite these differences, the interaction between age groups and languages is not significant, suggesting that the developmental patterns in

bilinguals are not so much different between Russian and German. At the same time, both monolingual and bilingual children always use more 0PROs in Russian than in German. These findings confirm the expectations for a more extensive use of 0PROs in Russian, compared to German, demonstrating the language-specific use of zero reference. Overall, the findings on the use of pronominal and zero reference confirm the hypothesis on language-specific performance but similar development over age in monolinguals and bilinguals in the analyzed age range (Hgr3a).

Developmental patterns and changes

With regard to the crosslinguistic comparison of developmental patterns and changes over age (RQgr3b), the results for the use of nominal reference show that developmental patterns indeed go in the same direction in monolinguals (a simultaneous decrease between age 4 and 5 and no change between age 5 and 6). In bilinguals, however, there is a continuous increase in German but not in Russian, resulting in significantly different patterns across languages, as mentioned above. In the use of pronominal reference, both Russian and German monolinguals first increase and then reduce the number of overt pronominal expressions, whereas bilingual children constantly decrease the number of overt pronominal expressions, demonstrating similar patterns in both languages. With regard to the use of zero reference, Russian monolinguals constantly increase the number of 0PROs over age, whereas German monolinguals stay on the same level in all age groups. Bilinguals show almost the same results, staying at the same level in German and increasing the number of 0PROs between age 5 and 6 in Russian, demonstrating the language-specific use of zero reference.

These findings support the prediction of continuous decrease in the use of overt pronominal reference in both languages in bilinguals but not in monolinguals. The increase in the use of zero reference in both monolinguals and bilinguals was also predicted in Russian but not in German, which is also supported by the findings. At the same time, the findings do not contradict the respective hypothesis, stipulating that developmental patterns can be different with regard to the use of pronominal reference due to some language-specific grammatical constraints (Hgr3b).

In general, similar developmental patterns in the crosslinguistic comparison of bilingual and especially of monolingual samples in the present study speak for a more universal, not necessarily language-specific development in the use of nominal and pronominal reference in narrative discourse. However, several significant differences were revealed as well. These results are generally compatible with the findings from the previous research on the use of reference in crosslinguistic comparison. Many researchers interpreted some referential strategies as universal, e.g., in the studies of Berman and Slobin (1994), Hickmann et al. (1996), or Verhoeven (1993), among others. At the same time, it was found that children also show language-specific preferences for referential choice (cf. Aksu-Koç & Nicolopoulou 2014; Hickmann & Hendriks 1999; Kail & Sanchez y Lopez 1997; Nicolopoulou et al. 2011;

inter al. for studies in French, Spanish, German, Chinese, Greek, Turkish, and other languages).

Whether the developmental patterns and changes as well as similarities and differences in the distribution of particular types of referential expressions across languages and samples are pragmatically driven, was analyzed at the next step of analysis, when the information status of a referent was taken into account.

8.2 Pragmatic use of referential expressions

For the analysis of the pragmatic use of referential expressions in child narrative discourse, the information status of a referent, one of the most important factors influencing referential choice, was considered. The information status was defined as *new, given,* or *accessible*, according to the classification proposed in the present study. As previously stressed in Chapter 2, section 2.2, for the analysis of the information status of a referent in the narrative discourse it is important to distinguish between *new*, *given,* and *accessible* as opposed to the distinction between *new* and *given*. Accounting for the information status of a referent implies accounting for cognitive activation and referential distance. This also play an important role in the choice of an appropriate referential expression for introducing, maintaining, or reintroducing referents into narration. The findings on the pragmatic use of referential expressions are summarized with regard to the corresponding research questions and hypotheses.

8.2.1 General distribution of referential expressions with regard to their information status in Russian and German in monolingual and bilingual samples

The first group of research questions with respect to the pragmatic use of referential expressions concerns the general distribution of referential expressions according to their information status, *new, given, accessible*, in monolingual and bilingual children as well as possible pragmatic crosslinguistic interactions in bilinguals.

General distribution

With regard to the general distribution of referential expressions according to their information status (RQpr1a), it can be observed in both languages, all samples, and all age groups that the distribution of referential expressions differs depending on the information status of referents: predominantly definite and indefinite nominal referential expressions among expressions with the information status *new* (postVbareNs, preVbareNs, and 0VbareNs[84] in Russian; in/defNPs in German), predominantly pronominal and zero referential expressions along with definite nominal expressions among expressions with the

[84] As described in section 7.2.1, in order to specify the in/definite interpretation of referents introduced into the narration, bareNs with the information status *new* were additionally divided into three categories: bareNs in preverbal position (preVbareNs), in postverbal position (postVbareNs), and in verbless sentences (0VbareNs).

information status *given* (PROs and 0PROs in Russian; DEMs, PROs, and 0PROs in German), and predominantly definite nominal types of expressions with the information status *accessible* (bareNs and occasionally demNPs in Russian; defNPs in German). Given the typological differences in the systems of reference, the types of referential expressions vary across the languages.

In the comparison of the distributions of referential expressions across all referents with different information statuses, the percentage of indefinite types of reference (indefNPs in German and postVbareNs in introductory sentences in Russian) is the highest (almost exclusive) for referents with the information status *new*. The percentage of pronominal reference is the highest for expressions with the information status *given*, whereas zero reference is used almost exclusively for maintaining reference. The percentage of definite nominal expressions (defNPs in German vs. bareNs and demNPs in Russian) is the highest for expressions with the information status *accessible*. At the same time, demNPs in Russian, an unexpected type of referential expression in the narrative discourse used practically only by bilingual children and, therefore, of special interest, were used equally for introducing, maintaining, and reintroducing referents. This indicates that their use is probably not bound to a specific pragmatic function, but rather that it is indeed driven by a need to mark definiteness with available grammatical means of a corresponding language. This underlines the importance of marking definiteness of a referent in the discourse in general.

In addition to the above, it is noteworthy that the use of indefinite referential expressions for introducing new referents does not considerably prevail over the use of definite nominal expressions in the monolingual or bilingual samples in any language and in any age group (except for a slight preference for indefNPs by 6-year-old bilinguals in German, 54% vs. 40%, and for postVbareNs by 5-year-olds monolinguals in Russian, 50% vs. 43%), although their use becomes more pronounced and stable with time, especially for bilinguals. At the same time, even older children often do not introduce all protagonists by means of indefNPs but use defNPs instead, especially for introducing a new referent in the middle of the story.

In Russian, 0VbareNs are also extensively used in the youngest age groups for introducing new referents, and, in German, a small number of bareNs[85] is used in both samples, mostly by 4-year-old children. These expressions could not be clearly interpreted as definite or indefinite because both readings are possible. Interestingly, bareNs in German are mostly used for introducing new referents, only rarely for reintroducing referents, and never for maintaining referents.

To some degree, children of all samples use pronominal reference for introducing new referents: PROs (6-10% in bilinguals, 0-4% in monolinguals) in Russian; DEMs (3-6% in monolinguals, 1-14% in bilinguals) and PROs (1-5% in bilinguals, 3% in 6-year-old monolinguals) in German; and even zero reference in both languages (only in bilinguals, 0-2% in Russian, 2-3% in German). This indicates that children, especially the younger ones,

[85] As a reminder, nouns without articles have been coded as bareNs in German only in case when article is needed. In case of correct omission of articles, e.g., in plural indefinites, referential expressions have been coded as indefNPs.

do not always introduce referents explicitly. However, the percentage of overt pronominal reference is rather low and the percentage of zero reference is close to zero. These results are consistent with the previous research, e.g., the studies of Karmiloff-Smith (1983) or Guetiérrez-Clellen (1993), who also found that children in the analyzed age range sometimes still have difficulties in introducing new referents explicitly with nominal expressions (making reference clear to the listener) and use pronouns or ellipsis instead. At the same time, the overall low number of pronominal expressions used for introducing new referents underlines once more the evidence that both monolingual and bilingual children recognize the necessity to introduce new referents with nominal, and not pronominal, types of referential expressions.

Thus, the results of the present study regarding the general distribution of referential expressions for introducing new referents are consistent with the results of previous studies on monolingual and bilingual children. They show that, although children do not introduce new referents *systematically* by means of indefinite noun phrases or comparable expressions (in the case of Russian) in the analyzed age range, they predominantly use nominal types of reference (e.g., Aarssen 1994; Bamberg 1987, 1994; Berman & Slobin 1994; Kail & Hickmann 1992; Karmiloff-Smith 1987; Serratrice 2007a; Verhoeven 1990, 2004; inter al.). In addition, specifically for German, Bamberg (1987) as well as Bamberg and Marchmann (1994) claimed that German- and English-speaking children start to use indefinite expressions at age 5, but they are still marginal even at age 10 (Hickmann 2003:123). At the same time, there is evidence from other languages, e.g., Greek, where children demonstrate earlier competence regarding introduction of new referents already at age 3-5 (Aksu-Koç & Nicolopoulou 2014). Since there are some noticeable differences in the use of indefNPs and defNPs by monolingual and bilingual children for introducing new referents in the present study as well, as already mentioned above, they are discussed in more detail in the subsection on intralinguistic comparisons, where developmental patterns and changes over age of this type of reference are described.

For maintaining referents in Russian and in German, children use pronominal expressions (PROs, DEMs, and 0PROs) more frequently than nominal expressions in all samples and in all age groups. This is true except for the 4-year-old monolinguals in Russian, who use “only” 38% of PROs and 0PROs taken together (out of all referential expressions in this category). In German, the use of all pronominal expressions ranges from 51% to 63% in monolinguals and 58% to 75% in bilinguals and in Russian from 38% to 70% in monolinguals and from 56% to 65% in bilinguals.

In the comparison of different types of pronominal expressions in German, bilinguals usually use more PROs than DEMs or 0PROs. Only the 4-year-olds constitute the exception, using slightly more DEMs than PROs (32% vs. 27%). In monolinguals, on the contrary, DEMs prevail over PROs in all age groups. With regard to the use of zero reference (0PROs), children of both samples use it to a similar degree in all age groups, ranging from 13% to 17%. In Russian, the percentage of 0PROs is much higher, ranging from 14% to 41% across different age groups and samples.

The results of the study partly contradict and partly confirm the previous findings in this domain. As reviewed in Chapter 3, in the studies of Karmiloff-Smith (1986), Bavin and Shopen (1985), and Bavin (1987), among others, children under age 5 were not able to link utterances by pronominal means when asked to tell a picture-based story, tending to describe each picture separately instead. Older children (between 5 and 8 years old) used pronouns only for referring to the main character of the story ("thematic subject strategy"), other characters being referred to by lexical noun phrases. Bamberg's study (1987) provided different results: children used pronominal reference already by age 3. However, they heard the story before retelling it themselves. The results of the present study suggest that monolingual as well as bilingual children in the analyzed age range are able to maintain reference by pronominal means, using overt pronominal and zero reference for this purpose in a language-specific manner. This is in line with the findings of Aarssen (1996), Gagarina (2008, 2012), Serratrice (2007a), Verhoeven (1990, 2004), among others. Especially noteworthy are the studies of Gagarina (2008, 2012), who used the same type of narrative and the same methodology in the presentation of pictures as in the present study, which allowing for better comparability of results.

For reintroducing referents in Russian and in German, both monolingual and bilingual children of all age groups predominantly use bareNs in Russian (81-83% in monolinguals and 50-70% in bilinguals) and defNPs in German (68-74% in monolinguals and 49-79% in bilinguals). Additionally, bilingual children of all age groups use demNPs in Russian, so that the overall number of nominal expressions becomes even higher: 57% in 4-year-olds, 71% in 5-year-olds, and 76% in 6-year-olds, diminishing the difference between the samples. In German, also indefNPs (0-4%) and bareNs (0-3%) are occasionally used in different age groups, with no significant differences between the samples.

Along with nominal expressions, both monolingual and bilingual children in almost all age groups use pronominal expressions: PROs (14-18% in monolinguals and 20-35% in bilinguals) and even 0PROs (3-5% in monolinguals and 4-8% in bilinguals) in Russian; DEMs (14-17% in monolinguals and 7-27% in bilinguals), PROs (4-12% in monolinguals and 7-16% in bilinguals), and 0PROs (0-3% in monolinguals and 2-5% in bilinguals) in German. Despite the relatively high number of pronominal expressions with the information status *accessible* in both samples and both languages, the use of PROs instead of nominal expressions is often justified by the context of the story, whereas 0PROs are used erroneously (see the subsection on developmental patterns with regard to reintroduction of referents in intralinguistic comparisons for further explanation).

The results for the reintroduction of referents are partly consistent with the findings from the previous research, e.g., Bamberg's study (1994) on German 3- and 5-year-old monolinguals, where children used both PROs and defNPs for reintroducing referents. Similar evidence is shown in my own study (Topaj 2010), where Russian-German bilinguals were investigated in the same age range as in the present work (but taken as one age group). In the present study, the tendency towards the more systematic use of nominal reference for reintroducing referents becomes even clearer in both monolingual and bilingual

children. On the other hand, e.g., Ratitamkul (2010) found that only 7-year-old Thai-speaking children could show clear preference for nouns in reintroduction contexts. This evidence contradicts the findings of the present study. In this respect, it should be noted that the reintroduction of referents is treated differently in different studies and may, therefore, lead to different findings. Furthermore, it could be bound to language-specific differences, as observed in many crosslinguistic studies.

Overall, the results of the present study show that the distribution of different types of referential expressions changes considerably according to the information status of a referent in both languages, supporting the hypothesis on the role of information status for referential choice in child narrative discourse (Hpr1a). The fact that referential expressions with the information status *accessible* are predominantly nominal and not pronominal demonstrates that children are well aware of the need to reintroduce referents if the reference maintenance was discontinued during the narration. This corroborates the observation made by Hickmann and Hendriks (1999:445), who analyzed referential cohesion in several languages, that "children are sensitive to referential continuity vs. discontinuity across clauses from four years on". Moreover, in both analyzed languages the change in referential choice occurs already with the smallest interruption of topic continuity, suggesting that the information status of a referent and referential distance to the antecedent as defined in the present study (given – the referent is mentioned in the previous clause; accessible – mentioned two or more clauses back) are powerful factors for referential choice.

Moreover, in many studies based on the previous research, it was claimed that young children still rarely take the perspective of the listener, concentrating more on their own perception of the story and the discourse (Kail & Hickmann 1992). Despite the fact that also very young children demonstrate sensitivity to the listeners' information needs in replying to questions (see Matthews et al. 2006; Wittek & Tomasello 2005) and show variations in word order, distinguishing between *old* and *new* information (see Baker & Greenfield 1988; MacWhinney 1985; Narasimhan & Dimroth 2008), they apparently do not apply this knowledge in the narrative context (Kail & Hickmann 1992). However, the results of the present study suggest that both monolingual and bilingual children in the analyzed age range can take the perspective of the listener into account, at least with respect to the reintroduction of referents into the narration. This finding is addressed again in the subsection on developmental patterns in intralinguistic comparisons.

All specific predictions with regard to the predominant use of certain referential expressions were equally confirmed for the monolingual and bilingual samples and both languages: indefinite nominal expressions (indefNPs in German and postVbareNs in Russian) were used almost exclusively for introducing new referents, although along with other expected expressions (definite nominal and pronominal ones) for the given age range; pronominal types of referential expressions (PROs and 0PROs in Russian; DEMs, PROs, and 0PROs in German) along with definite nominal expressions for reference maintenance; and definite nominal types of referential expressions (defNPs in German; bareNs and

demNPs in Russian) for reintroducing referents, along with pronominal expressions used to a much smaller degree.

Crosslinguistic interactions

With regard to the possible crosslinguistic interactions in the pragmatic use of referential expressions in Russian-German bilingual children (RQpr1b), no peculiarities or significant interactions are observed in the data, either for introducing, maintaining, or reintroducing of referents.

For introducing new referents in Russian, it was predicted that bilingual children might use noun phrases with a specificity marker (analogous to indefNPs in German) to a higher degree than monolinguals, but no evidence could be found in this respect. Actually, bilinguals barely use this type of referential expression at all. At the same time, for German, it was predicted that bilingual children might use more bareNs than monolingual children. This could not be confirmed either. Younger children use this expression in German to a small degree, but there are no significant differences between bilingual and monolingual children in either age group in the use of this expression for introducing new referents.

For maintaining referents, it was predicted that bilinguals might use DEMs more extensively in Russian (along with PROs), analogous to German, and more 0PROs in German, analogous to Russian. However, none of these predictions could be confirmed. Moreover, bilinguals barely use DEMs at all, as demonstrated in the grammatical part of the analysis. Furthermore, bilinguals use 0PROs in German mainly in accordance with grammatical constraints (e.g., omitting coreferential subjects in coordinate clauses).

No specific predictions were made regarding the possible pragmatic interactions between the languages for referent reintroduction.

The only peculiarity is the more extensive use of demNPs by bilingual children for maintaining and reintroducing referents in Russian. It is significant in the comparison of the bilingual and monolingual samples taken as a whole but could not be proved to be significant in the comparisons within any age groups (most probably due to an insufficient data size, given the smaller number of participants per group). Given these results, the use of demNPs in Russian by bilingual children does not clearly indicate a specific pragmatic use (analyzed with regard to the information status of a referent) other than marking definiteness grammatically, as already suggested above.

Overall, these findings do not support the hypothesis on possible pragmatic interactions (Hpr1b) with respect to the use or overuse of specific types of referential expressions for a specific discourse purpose (introduction, maintenance, or reintroduction of referents) in either of the analyzed languages. At the same time, the interactions, if any, were predicted to be marginal. In this sense, the results do not contradict the hypothesis either.

As reviewed in Chapter 3, the previous findings with regard to crosslinguistic interactions are rather inconsistent: sometimes, crosslinguistic influences were found only in one of the languages of bilingual children (either L1 or L2), e.g., in Serratrice et al. (2004) or in the study of Fiestas and Peña (2004), or they were bi-directional (Chen & Lei 2013), or no influence

could be found at all (Serratrice et al. 2004). The inconsistency of findings is mainly related to the investigated language or language combination, differences in performed tasks, investigated phenomena, etc. Thus, on the one hand, the absence of distinctive crosslinguistic interactions in the analyzed sample in the present study indicates a target language-specific pragmatic competence of children, and, on the other hand, it does not mean that there are no interactions at all. They could be just not yet discovered.

8.2.2 Intralinguistic comparisons of monolingual and bilingual samples

The second group of research questions with respect to the pragmatic use of referential expressions concerns intralinguistic comparisons of the monolingual and bilingual samples within and across age groups in each of the analyzed languages. The distribution of referential expressions used for introducing, maintaining, and reintroducing discourse referents was analyzed for each category separately.

Introduction of discourse referents (information status new)

Performance and development over age

With regard to the intralinguistic comparison of performance and development in monolingual and bilingual children (RQpr2a) related to the introduction of new referents, in Russian, significant differences between monolingual and bilingual performance are found only in the use of postVbareNs (more in monolinguals) and PROs (more in bilinguals) by 4-year-olds and in the comparison of the whole samples. For the latter, one of the possible explanations could be that some bilingual children have additional lexical difficulties with naming protagonists (as pointed out in Gagarina 2012 as well), and not that they have less pragmatic competence in comparison to monolingual children.

Also, the developmental patterns in the use of almost all types of referential expressions can be interpreted as similar in both samples. The exception is the use of preVbareNs, where there is no visible change over age in monolinguals, whereas bilinguals first slightly reduce it by age 5 and then increase it again by age 6 (these changes are not significant though). A two-factorial analysis of variance (interaction between samples and age groups) could only be performed for the use of preVbareNs and showed no significant difference. In the analysis of other types of referential expressions, the requirements for a two-factorial analysis were not fulfilled due to the data distribution. No significance tests were done with regard to the development over age in the use of demNPs and 0PROs because of the small number of observations per age group.

In German, bilingual children use significantly more indefNPs and significantly fewer defNPs than monolingual children in the comparison of the whole samples and at age 5 in within-age-group comparisons. In the use of pronominal reference (PROs, DEMs, and 0PROs) for introducing new referents, none of the differences between monolinguals and bilinguals was significant. The developmental patterns seem to be different rather than similar, at least with regard to the use of nominal expressions. However, the apparent

difference in developmental patterns could not be verified statistically, as a two-factorial analysis of variance (interaction between samples and age groups) in the use of either expression could not be performed due to the non-normal data distribution and partially small data size.

Based on these results, the hypothesis on similar performance and development in monolingual and bilingual children (Hpr2a) is confirmed for the most types of referential expressions used for introducing new referents in Russian in almost all age groups, except for the use of PROs and postVbareNs in 4-year-olds. In German, the significant differences in the use of indefNPs and defNPs in 5-year-olds indicate different performance and development with regard to the most important types of nominal expressions used for introducing new referents. This does not support the corresponding hypothesis. At the same time, the results suggest that bilingual children show more systematicity in their referential choice in German already from early on, compared to monolingual children. Interestingly, in Russian, it is the other way around. One of the possible explanations could be that Russian-German bilingual children rely more on the clear differentiation between definite and indefinite articles in German than on the syntactic position of the noun phrase in Russian, which is used as an indicator for noun in/definiteness in introducing contexts. However, this was not analyzed in detail in the framework of the present study.

Developmental patterns and changes over age

With regard to the developmental patterns and changes over age (RQpr2b) bound to the use of referential expressions for introducing new referents, there are indeed two significant changes in Russian in both samples. The increase in the use of postVbareNs is significant for bilinguals, taking place between age 4 and 5 (11% vs. 34% respectively), but not for monolinguals (30% vs. 50%), who, in contrast, use significantly more postVbareNs than bilinguals already at age 4 (30% vs. 11% respectively). The specific prediction of increase of postVbareNs used for introducing new referents can therefore be confirmed, at least for the bilingual sample. The same tendency is observed in the monolingual sample. The simultaneous decrease in the use of preVbareNs cannot be confirmed though, as there is almost no change in the use of this referential type in either sample. No specific prediction was made concerning the use of 0VbareNs, but there is a significant decrease in monolinguals, from an unexpectedly high percentage at age 4 (25%) to 2% at age 5. Bilinguals continue to use 0VbareNs even at age 6 with no significant change over age, although they successively reduce it (from 19% at age 4 to 8% at age 6). Taking into account the context in which bareNs are used by children, one can tentatively interpret the developmental change with regard to the reduction of the use of 0VbareNs in terms of general change on the microstructural level in narrative discourse towards a more elaborated syntactic and lexical complexity, taking place around age 5 or age 6.

Overall, it can be stated that both monolingual and bilingual children in the analyzed age range learn that it is preferable to introduce new referents by indefinite means (postVbareNs in the case of Russian), although their use is not yet dominant in either sample. Also, it

seems that children often do not apply this principle throughout the whole story, e.g., they introduce the first referent with a postVbareN and the next one with a preVbareN. Whereas monolingual children already use more postVbareNs at age 4, bilingual children catch up by age 5 and their performance does not significantly differ from that of monolinguals anymore in this respect. Given that 0VbareNs can also be interpreted as indefinite and that their use is still considerable in 4-year-olds (in both samples) and in 5- and 6-year-old bilinguals, the overall number of potentially indefinite expressions can be even higher.

In German, there are several significant developmental changes. In the use of indefNPs, predicted to increase with age, the prediction was confirmed for both samples but at different ages: monolingual children significantly increase the use of indefNPs by age 6, whereas bilingual children do so already by age 5. In the use of defNPs, predicted to continuously decrease with age, monolingual children first significantly increase it by age 5 and only then significantly reduce it by age 6, a trend contrary to the expectations (whereas for bilinguals there are no significant changes in this respect). This evidence partly contrasts with the results provided by the above-mentioned studies, claiming that children start to use indefNPs systematically much later. On the other hand, one of the few studies on reference introduction and maintenance in bilingual children (Aarssen 1996) showed that Turkish-Dutch bilingual children between 4 and 10 years old introduced new referents with indefNPs in both languages. The results of the present study also suggest that Russian-German bilingual children rely even more frequently and earlier than monolingual ones on indefNP as a target referential expression for introducing new referents.

The unexpected considerable increase in the use of defNPs by age 5 in monolinguals (up to 82%) with simultaneous decrease in the use of indefNPs can tentatively be explained by the assumption that 5-year-old monolingual children consider defNP as the target expression for introducing new referents. Only by age 6 do they realize that indefNP is actually more appropriate. At the same time, they introduce protagonists more often in complete sentences, and sometimes introduce several referents at once, increasing syntactic and referential complexity of the stories. At age 4 they still often simply name protagonists (by means of indefNPs) in reduced propositions (without acknowledging the discourse function of indefNPs). On the other hand, it should be admitted that the results for monolinguals could be bound to the effects of the group size, as the monolingual groups in this study are smaller than the bilingual ones.

In any case, bilingual children of the analyzed sample seem to continuously increase the use of indefNPs along with increasing syntactic complexity. Among 20 bilingual children in the group of 5-year-olds there is only one occurrence of naming. All other indefNPs are produced in syntactically complete sentences whereby discourse referents are properly introduced. Therefore, the interaction between the syntactic complexity and the use of certain types of referential expressions can be a powerful factor for the pragmatic development. The syntax-pragmatic interface has been addressed by different researchers, as reviewed in Chapter 3 (e.g., Avrutin 1999; Schaeffer 2000; Serratrice et al. 2004; Tedeschi 2007a; inter al.). Another possible explanation for the earlier pragmatic development in bilinguals

regarding the more target-like use of indefNPs for introducing new referents might be related to their exposure to two languages, which increases their metalinguistic awareness and results in generally more advanced pragmatic development, as pointed out in e.g., Bialystok (1999, 2001a, 2001b, 2004), Cummins (1978), or Siegal et al. (2010).

No specific predictions were made concerning the developmental changes in the use of pronominal expressions for introducing referents in German, as their number was expected to be rather low from the beginning. However, there is a significant decrease in the use of DEMs between age 4 and 5 in bilinguals. This result can be interpreted both in terms of the general decrease in the use of this referential expression at the grammatical level, regardless of the information status (see the grammatical part of the results) and in terms of the pragmatic development (as bilinguals from age 5 on generally use fewer pronominal expressions for introducing new referents instead of switching to PROs). Also, at age 4, some bilingual children can simply have lexical difficulties in naming protagonists (as already pointed out above) and, therefore, continuously refer to protagonists with pronominal means throughout the whole story.

Overall, for the most part, the results support the corresponding hypothesis on developmental patterns and changes over age towards a more systematic use of specific types of referential expressions for introducing new referents (Hpr2b) in both languages. At the same time, expected developmental changes do not occur as predicted at the same age in monolingual and bilingual children in the analyzed age range. Furthermore, specific predictions with regard to the simultaneous increase in the use of indefinite nominal reference (postVbareNs in Russian, indefNPs in German) and decrease in the use of definite nominal reference (preVbareNs in Russian, defNPs in German) do not hold for either language.

Maintenance of discourse referents (information status given)

Performance and development over age

With regard to the intralinguistic comparison of performance and development in monolingual and bilingual children (RQpr2a), the results concerning reference maintenance in Russian and German are not uniform.

In Russian, children of both samples demonstrate similar performance in the use of bareNs and PROs in the 5- and 6-year-old age groups, 0PROs in the 4- and 6-year-old age groups, and demNPs in all age groups. In other within-age-group comparisons between monolinguals and bilinguals there are significant differences in their performance. The comparisons between the whole samples do not reveal significant differences, except for in the use of demNPs. As for the proportions of PROs and 0PROs compared in relation to each other, there is a general tendency in both samples: 4- and 5-year-olds use more PROs than 0PROs, whereas 6-year-olds use more 0PROs than PROs. At the same time, the number of PROs and the number of 0PROs, considered separately, differ in the analyzed samples within age groups as well as across age groups. 4-year-old bilinguals use significantly more

PROs than monolinguals of the same age (40% vs. 24%) and 5-year-old monolinguals use significantly more 0PROs than bilinguals of the same age (31% vs. 19%).

The developmental patterns are, therefore, different rather than similar, especially in the use of 0PROs and bareNs, where the significant differences in development over age could be confirmed by a two-factorial analysis of variance (interaction between samples and age groups).

The results for German reveal many similarities but also many differences. Bilinguals use significantly fewer defNPs than monolinguals (29% vs. 44% respectively) when the whole samples are considered. In the comparison of the age groups as well, they always use fewer defNPs than monolinguals, but the difference is significant only for 4-year-olds. Whether children use defNPs for maintaining referents only in contexts when they shift from in/defNPs (new) to defNPs (given) or also under other conditions was not analyzed in detail. Additional reasons for this could be bound either to reference disambiguation when several referents are used in one clause, the referent's syntactic function, its antecedence, grammatical gender, etc. Among pronominal expressions, bilinguals use significantly more PROs than monolinguals (30% vs. 19% respectively) in the comparison of the whole samples. However, in within-age-group comparisons, the differences in this respect are not significant. Regarding the use of 0PROs, no significant differences are found in either sample between monolingual and bilingual performance within or across age groups.

Contrary to Russian, the developmental patterns for each type of referential expression used for reference maintenance in German seem to be similar in both samples. Although the interaction between samples and age groups could not be statistically analyzed due to the non-normal data distribution, given that there are no significant differences within and across age groups except for in the use of defNPs in 4-year-olds, the performance and development over age can be interpreted as similar from age 5 on. Bilinguals use far fewer defNPs at age 4 but instead use more pronominal expressions, which are perfectly appropriate for maintaining referents.

Thus, with regard to reference maintenance in German, the hypothesis on similar performance and development in monolinguals and bilinguals (Hpr2a) is for the most part supported. It cannot be fully supported for reference maintenance in Russian though, given considerable differences in the 4- and 5-year-old age groups. At the same time, it should be stressed that, despite the differences in these age groups, by age 6, bilingual performance does not differ anymore from monolingual in the use of any referential type for reference maintenance.

Developmental patterns and changes over age

With regard to the developmental patterns and changes over age in the use of referential expressions (RQpr2b) bound to reference maintenance, several significant changes could be observed in the data in Russian. As predicted, the use of zero reference (0PROs) significantly increases with age in both samples: in monolinguals, the difference is significant between 4- and 5-year-olds and between 4- and 6-year-olds and, in bilinguals, between 5-

and 6-year-olds (after an initial decrease between age 4 and 5). The increase in the use of 0PROs in Russian is consistent with results from previous studies for different languages, e.g., in English, German, or Hebrew, in similar narrative contexts (Berman & Slobin 1994).

However, the same prediction does not hold for the use of overt pronominal reference (PROs): monolinguals first increase the number of PROs by age 5 and then decrease it by age 6, whereas bilinguals continuously reduce the number of PROs. The differences across age groups, however, are not significant in either sample. At the same time, as predicted, the number of definite nominal expressions (bareNs) significantly decreases between age 4 and 5 in the monolingual sample. Contrary to the prediction, however, their number does not change much over age in the bilingual sample, thereby confirming the decrease in the use of bareNs for the monolingual sample only.

In German, the results show no significant changes in the use of any type of referential expression. Thus, the specific prediction of increase in the use of pronominal expressions with a simultaneous decrease in the use of definite nominal expressions in both samples cannot be confirmed for either referential expression. Interestingly, children of both samples even increase the use of defNPs by age 6 (though not statistically significant), resulting in a smaller number of pronominal expressions used for reference maintenance. A further specific prediction concerning the expected decrease of DEMs being replaced by PROs over age cannot be confirmed either, as monolinguals do not decrease its use at all and bilinguals show a tendency to decrease its use by age 5, but not to a statistically significant degree.

Overall, the corresponding hypothesis on developmental changes (Hpr2b) is supported by the data only partly. In German, no developmental changes occur in the analyzed age range. In Russian, on the contrary, children of both samples show pragmatic changes. However, these changes do not occur at the same age as predicted, since monolinguals demonstrate an increase in the use of 0PROs and a decrease in the use of bareNs earlier, between age 4 and 5, compared to bilinguals, who increase the use of 0PROs between age 5 and 6. At the same time, bilinguals use more 0PROs and PROs and fewer bareNs than monolinguals already at age 4, demonstrating a more target-like use of referential expressions for maintaining referents.

On a general note, reference maintenance allows for more variability in the use of referential expressions, which might depend on many factors already mentioned above. It seems that monolingual and bilingual children are able to regulate the process of referential choice with regard to reference maintenance without their performance becoming too conspicuous. It would be relevant to investigate more closely which factors they take into account in the analyzed age range.

Reintroduction of discourse referents (information status accessible)

Performance and development over age

With regard to performance and development over age in monolingual and bilingual children compared intralinguistically (RQpr2a), the results pertaining to reference reintroduction in Russian are quite homogeneous: despite the differences in the percentage

of bareNs in monolinguals and bilinguals, the difference is only significant for 4-year-olds and in the comparison of the whole samples. The development over age seems to be different in the monolingual and bilingual samples, especially between age 4 and 5, but could not be confirmed statistically (two-way ANOVA could not be performed due to the data distribution). At the same time, it should be recalled that bilinguals also use demNPs, which can be added to the overall number of bareNs used for reintroducing referents. The differences in the use of PROs and 0PROs are not significant for any comparisons. In any case, already by age 5, bilingual children show a similar performance in the use of all referential expressions with the information status *accessible,* compared to monolingual children of the same age.

The results for German show significant differences only in the use of defNPs by 4-year-olds (monolinguals use more defNPs than bilinguals) and in the use of DEMs by 6-year-olds (more in monolinguals). Thus, already at age 5, children of both samples perform similarly with regard to all types of referential expressions used for reintroducing referents. At age 6, the only difference between the samples is in the use of DEMs. Given that all other comparisons within and across age groups do not show significant differences in either sample, the developmental patterns can be interpreted as similar, with the exception of the development in the use of defNPs between age 4 and 5. Here as well, the overall interaction between samples and age groups could not be statistically confirmed due to the non-normal data distribution.

Thus, for the most part, the findings on the use of referential expressions for reference reintroduction, except for the few differences presented above, support the hypothesis on similar performance and development in monolingual and bilingual children (Hpr2a) in both languages.

Developmental patterns and changes over age

With regard to the developmental patterns and changes in the analyzed age range (RQpr2b) pertaining to the results on reference reintroduction in Russian, no significant changes over age can be observed in the data. The increase of bareNs in the bilingual sample between age 4 and 6, although considerable, is not significant. In the monolingual sample, the number of bareNs remains stable over age. Thus, the specific prediction of increase of definite nominal expressions in both samples is not confirmed. At the same time, given that already in 4-year-old monolinguals more than 80% of referential expressions used for reintroducing referents are bareNs, the developmental shift might have taken place earlier. In the use of pronominal expressions, a similar pattern can be observed: whereas monolinguals use a similar number of PROs across age groups, bilinguals continuously reduce it over age (simultaneously increasing the number of bareNs). This decrease is not significant though.

In German, the results are not homogeneous. There is no significant increase in the use of defNPs by monolinguals over age and a significant increase by bilinguals can only be confirmed for the overall variance across age groups but not for post-hoc single comparisons (post-hoc tests with adjusted p-values turned out to be not significant). This indicates that the

overall level of significance is rather low. Thus, the specific prediction for the increase of defNPs cannot be fully confirmed. Given that monolinguals already show a predominant use of defNPs at age 4, similarly to Russian, the absence of a significant increase is not surprising. As for the simultaneous decrease in the use of pronominal types of referential expressions, predicted for both samples, no significant developmental changes are found in either sample. Monolingual children even increase the use of PROs by age 5, slightly reducing it again by age 6. These changes are not statistically significant though.

Thus, overall, the corresponding hypothesis on developmental changes (Hpr2b) is not supported by the data, in either language. At the same time, the data do not contradict this hypothesis either, given that children in both samples demonstrate a systematic use of appropriate types of referential expressions already at age 4. The findings suggest that children acknowledge the importance of reintroducing referents explicitly (mostly with definite nominal expressions) from early on and that the developmental shift in respect to the reintroduction of referents could have taken place even earlier. As already mentioned previously, these results partly confirm the findings from the previous research, e.g., Bamberg's (1994) study for German monolinguals, Serratrice (2007a) for Italian and English monolinguals and bilinguals, or Topaj (2010) for Russian-German bilinguals. However, in the present study, the results for the predominant use of definite nominal expressions seem to be more pronounced and consistent for all age groups in the analyzed age range.

The marginal use of indefNPs underlines its pragmatic function for introducing new referents and not for reintroducing them, since their information status changed throughout the story. At the same time, the use of PROs or DEMs for reintroducing referents does not automatically mean that children have not yet learnt to use defNPs for this purpose exclusively. Often it is the case that, despite the need to reintroduce a referent, the referent is clearly identifiable, e.g., because of its gender, properties, or activities that are bound to the story. Consider, for example, referential expressions in sentences like *She flies away* (can refer only to the mother-bird in the CAT story), *It falls down* (can only refer to the fish bone in the FOX story), *He bites her tail* (can only refer to the dog in the CAT story). Here the reference to a particular referent with PRO or DEM is adequate, despite the greater effort demanded from the listener to establish reference to the corresponding protagonist than in a case with reintroduction by a defNP. The very small number of 0PROs in both samples indicates that already young children understand the pragmatic function of zero reference for reference maintenance and that 0PROs are not suitable for referents with the information status *accessible*. At the same time, the use of 0PROs in reintroduction contexts was found in previous studies as well, e.g., in Italian (pro-drop language), where children occasionally used 0PROs in such contexts even at age 10, apparently relying on the referent's clear identifiability due to other factors, such as gender or verb semantics (e.g., Orsolini et al. 1996; Serratrice 2007a).

Overall, considering the distribution of referential types used for introducing, maintaining, and reintroducing referents in the picture-based narratives in Russian and German, it can be

concluded that children of both samples demonstrate a good understanding of pragmatic functions of different types of referential expressions that are bound to the information status of a referent. The fact that indefNPs are practically absent among referents with the information status *given* and *accessible* indicates that the indefNP's discourse function was acknowledged, even though it is not the only type of referential expression used for introducing new referents by children in the analyzed age range. The immediate change towards the use of pronominal expressions in the distribution of referential types when the information status of a referent changes from *new* to *given* shows that children are also sensitive to the role of information status. The overwhelming use of defNPs for reintroducing referents in German and the rather high number of bareNs in Russian shows that children understand very well the need for reintroducing referents after reference maintenance has been interrupted. The data coded according to the classification applied in this work clearly demonstrate the difference between introducing, maintaining, and reintroducing referents.

Although there are several significant differences in bilingual and monolingual pragmatic performance and development in the analyzed age range, it should be stressed that, regarding the use of practically any referential expression, bilingual performance does not significantly differ from the monolingual one by age 5 (except for the use of 0PROs with the information status *given* in Russian and in/defNPs with the information status *new* in German) or by age 6 at the latest (except for the use of DEMs with the information status *accessible* in German). In some cases, bilinguals seem to be even more advanced than monolinguals in their performance and development.

As has been previously pointed out, many studies have already reported on cognitive and pragmatic advantages in bilinguals in different domains (e.g., Bialystok 1999, 2001a, 2001b, 2004; Siegal et al. 2010; inter al.). Thus, it can be argued that, to some extent, the more advanced performance and development over age in Russian-German bilinguals with regard to the pragmatic use of reference can be explained in terms of their general pragmatic advantages bound to the metalinguistic awareness: "exposure to more than one language facilitates children's metalinguistic awareness" (Siegal et al. 2010:6).

8.2.3 Crosslinguistic comparisons of monolingual and bilingual samples

The third group of research questions with respect to the pragmatic use of referential expressions concerns crosslinguistic comparisons of the monolingual and bilingual samples within and across age groups. As a reminder, referential expressions were considered in more general categories: indefinite types of nominal reference (postVbareNs in Russian vs. indefNPs in German) and definite types of nominal reference (preVbareNs and demNPs in Russian vs. defNPs in German) for introducing new referents; all bareNs and demNPs in Russian vs. in/defNPs and bareNs in German for comparing the use of nominal reference for maintaining and reintroducing referents; overt pronominal reference (PROs and DEMs as one category in each language) and zero reference (0PROs), which can be compared directly, for introducing, maintaining, and reintroducing referents. This categorization was

necessary due to typological differences between Russian and German referential systems, where similar types of referential expressions often have different functions.

Introduction of discourse referents (information status new)

Performance and development over age

With regard to the performance and development over age in the crosslinguistic comparison (RQpr3a) concerning introduction of new referents, the findings show several interesting patterns in the monolingual and bilingual samples. Recall that, in order to trace parallels in the use of indefinite and definite nominal reference across languages, the use of postVbareNs in Russian was compared to the use of indefNPs in German and the use of preVbareNs and demNPs (taken together) in Russian was compared to the use of defNPs in German. 0VbareNs in Russian and bareNs in German were not included in the analysis of indefinite or definite reference for introducing new referents, as they cannot be clearly allocated to a definite or indefinite category. Given this method of analysis, it is not the overall percentage of nominal expressions that is important but their proportions in the samples as well as development over age in each language. With regard to the use of pronominal reference, PROs and DEMs were combined into a single category and 0PROs are analyzed separately.

The results reveal significant differences between the languages in the use of indefinite and definite nominal reference as well as in the use of pronominal reference.

In particular, German monolinguals use significantly fewer indefNPs (12%) and significantly more defNPs instead (up to 82%) at age 5, in comparison to Russian monolinguals, who use postVbareNs to a higher degree in all age groups (although significantly higher only for 5-year-olds, 50% in Russian vs. 12% in German). Given that a part of 0VbareNs could also be interpreted as indefinite in the introductory contexts, the difference between the languages in this respect could be even bigger. In general, the performance of monolingual children in Russian and German is quite comparable at age 4 and age 6, but not at age 5. Therefore, the developmental patterns in Russian and German monolinguals seem to be different, although not confirmed statistically (a two-factorial analysis of variance could not be performed due to the data distribution).

In bilinguals, on the other hand, the only difference between their performance in Russian and German compared crosslinguistically within age groups, is in the 6-year-olds, who use significantly more indefNPs in German (54%) than postVbareNs in Russian (38%). At the same time, as mentioned above, a part of 0VbareNs (overall 8% in this age group) could also be interpreted as indefinite, thereby minimizing the difference between the languages in the use of indefinite reference. Thus, the difference based on the comparison of indefNPs vs. postVbareNs should be considered with caution in this particular case. A two-factorial analysis shows no difference in the use of indefinite and definite nominal reference between age groups and languages in the bilingual sample.

As for the use of pronominal reference for introducing new referents (PROs+DEMs), it is quite marginal in monolinguals in both languages, ranging between 0%-4% in Russian and

3%-7% in German, with no significant differences between the languages in either age group. In bilinguals, the use of pronominal expressions is more extensive in both languages than in monolinguals, especially in 4-year-olds (9% in Russian and 18% in German). At the same time, here as well, no significant differences are found between the languages in either age group. What is different for bilinguals is their development over age, as the developmental patterns significantly differ in the crosslinguistic comparison (confirmed by a difference test for dependent samples). At age 5, bilinguals perform similarly in both languages though. Due to the small data size, no statistical tests could be performed for monolinguals either for the comparisons across age groups or for the interaction between age groups and languages in the use of pronominal reference.

Overall, the results based on the crosslinguistic comparisons do not fully support the hypothesis on language-specific performance but similar development across languages (Hpr3a) for monolinguals. The results support it for bilinguals with regard to the use of indefinite and definite nominal reference for introducing new referents. Only in the use of pronominal reference, which is marginal in monolinguals and is not supposed to be the target use for introducing new referents, is the situation reversed: bilingual children show differences in development, whereas monolingual children show similar performance and development in both languages.

Developmental patterns and changes over age

With regard to the developmental patterns and changes over age (RQgr3b), the results show that, contrary to the specific prediction of simultaneous increase in the use of indefinite reference and simultaneous decrease in the use of definite reference for introducing new referents in both languages, the changes do not take place at the same time in monolinguals. Moreover, whereas Russian monolinguals continuously increase the use of postVbareNs, from 30% at age 4 to 49% at age 6 (with no change across age groups in the use of preVbareNs, varying between 43%-45%), German monolinguals demonstrate a sudden decrease in the use of indefNPs, from 26% at age 4 to 12% at age 5 (increasing the use of defNPs instead, from 60% at age 4 to 82% at age 5) and a subsequent increase of indefNPs to 40% by age 6 (with simultaneous decrease to 53% at age 6 in the use of defNPs). This indicates a remarkable change in pragmatic development. Bilinguals, on the other hand, show a simultaneous increase in the use of indefinite reference, as predicted, but do not demonstrate significant developmental changes within the analyzed age range in the use of definite reference in either of the two languages. No predictions were made with respect to the use of pronominal reference for introducing new referents, as it was expected to be marginal. The results indicate that monolinguals barely use it at all and that bilinguals slowly reduce the number of PROs in Russian (from 9% at age 4 to 6% at age 6), with no significant difference across age groups. In German, they significantly decrease the number of PROs from 18% at age 4 to 3% at age 5 and remain on the same level at age 6. Thus, there is a significant developmental change in this respect as well.

Overall, the results indicate that, although there are significant developmental changes in the analyzed age range for both monolingual and bilingual children with regard to the introduction of new referents, the changes develop in the same direction and take place simultaneously in bilinguals in Russian and German, but not in monolinguals. Thus, the corresponding predictions and hypothesis made in this respect (Hpr3b) hold only for bilingual children. These findings suggest that bilingual children apply similar referential strategies for introducing new referents, whereas monolingual children apparently do not.

Maintenance of discourse referents (information status given)

Performance and development over age

With regard to the performance and development over age in the crosslinguistic comparison (RQpr3a) concerning reference maintenance, the findings show several interesting patterns in both monolingual and bilingual samples. Recall that for the crosslinguistic comparison of referential expressions used for reference maintenance, PROs and DEMs were combined into one category (overt pronominal reference), 0PROs (zero reference) were compared directly in both languages, and all nominal expressions in German were compared to all bareNs and demNPs taken together in Russian as a category of (definite) nominal reference.

Monolingual as well as bilingual children use both nominal and pronominal types of referential expressions (to different degrees) for maintaining referents. With regard to the use of nominal referential expressions, there are no significant differences between monolinguals in Russian and German, either in the within-age-group comparisons or in the interaction between languages and age groups. However, 4-year-old Russian monolinguals use more nominal expressions than German ones and vice versa in 5- and 6-year-olds (62% vs. 49% in 4-year-olds and 31% vs. 38% in 5-year-olds and 30% vs. 46% in 6-year-olds). Thus, the developmental patterns are also similar across languages in monolinguals, supporting the corresponding hypothesis. In bilinguals, on the contrary, there are differences in 4- and 5-year-olds across languages (in both age groups children use more nominal expressions in Russian than in German, 36% vs. 25% and 4% vs. 28% in 4- and 5-year-olds respectively). The developmental patterns are also not similar (based on the results of the difference test for dependent samples), which does not support the corresponding hypothesis.

As for the use of pronominal expressions (including zero) for reference maintenance, the percentage of pronominal expressions (PROs+DEMs and 0PROs taken together) is almost always higher than nominal ones in each language (except for 4-year-old monolinguals), ranging from 56% to 70% in Russian and 54% to 75% in German. With regard to the use of overt pronominal reference, both monolingual and bilingual children always use more overt pronominal expressions in German than in Russian (as predicted), ranging from 38%-49% in German monolinguals and 42%-59% in bilinguals vs. 24%-38% in Russian monolinguals, and 28%-40% in bilinguals. However, the differences in the within-age-group comparisons are significant only in bilinguals. At the same time, the developmental patterns are similar in

Russian and German in both the bilingual and the monolingual samples (with no significant differences in either sample between the languages over age).

As for the use of zero reference, the proportion of 0PROs is always higher in Russian than in German, ranging in Russian from 14%-41% in monolinguals and 19%-37% in bilinguals vs. in German from 13%-14% in monolinguals and 16%-17% in bilinguals. The differences are significant for the 5- and 6-year-old monolinguals and the 6-year-old bilinguals. This partly confirms the specific prediction made in this respect, speaking in favour of a language-specific use of this type of referential expression. Moreover, in both languages, zero reference is used almost exclusively for maintaining referents in the discourse (as opposed to introducing and reintroducing referents). The developmental patterns are clearly different across languages in the monolingual samples (although it could not be confirmed statistically due to the data distribution), demonstrating not only language-specific performance but also development over age in the use of zero reference. The developmental patterns in bilingual children, on the other hand, are not significantly different between languages over age, despite the difference in the 6-year-olds (two-way ANOVA). These results indicate in particular that, although bilinguals show predictably similar developmental patterns in both of their languages, they also demonstrate language-specific performance with respect to the use of zero reference.

Overall, the results support the corresponding hypothesis (Hpr3a) for language-specific performance but similar pragmatic development across languages for bilingual children with regard to the use of overt pronominal and zero reference. For monolingual children, this hypothesis holds for the use of nominal and overt pronominal reference. Grammatical constraints in the use of zero reference seem to influence the pragmatic development of monolinguals to a higher degree than of bilinguals.

Developmental patterns and changes over age

With regard to the developmental patterns and changes over age (RQgr3b), the results show that, although developmental patterns in both languages mostly go simultaneously towards a more systematic use of nominal and pronominal types of referential expressions, not all specific predictions could be confirmed. This is particularly true for the use of nominal reference, where the patterns do not fully confirm the prediction of simultaneous decrease in both languages: whereas Russian monolinguals indeed significantly reduce the use of nominal reference, German monolinguals and Russian-German bilinguals barely do so. Furthermore, there is no increase in the use of overt pronominal reference by monolinguals in either language. Instead, although not significant, there is even a slight decrease in bilinguals. The same applies to the use of zero reference: whereas Russian monolinguals significantly increase its use (as predicted), German monolinguals do not do so at all. Bilingual children show the same pattern in the corresponding language.

Thus, on the one hand, the results support the corresponding hypothesis (Hpr3b) and, on the other hand, do not fully confirm the specific predictions in the monolingual and bilingual samples regarding reference maintenance in the crosslinguistic comparison. At the same

time, the findings suggest that bilingual as well as monolingual children apply similar referential strategies in both languages with regard to the more systematic use of nominal and pronominal referential expressions, but not with regard to the use of zero reference. In that respect, monolingual children stay within language-specific grammatical constraints of the corresponding language and by age 6 bilingual children do the same.

Reintroduction of discourse referents (information status accessible)

Performance and development over age

With regard to the performance and development over age in monolingual and bilingual children in the crosslinguistic comparison (RQpr3a), clear patterns can be observed in the use of reference for reintroducing referents. As a reminder, for the crosslinguistic comparison of referential expressions used for reintroducing referents, PROs and DEMs were combined into one category (overt pronominal reference), 0PROs (zero reference) were compared directly in both languages, and all nominal expressions in German were compared to all bareNs and demNPs taken together in Russian as a category of (definite) nominal reference.

Both monolingual and bilingual children predominantly use nominal referential expressions for reintroducing referents in both languages. Taken as whole samples, Russian monolinguals do so slightly more than German monolinguals (82% and 75% respectively, out of all referential expressions with the information status *accessible*), whereas bilinguals use 68% in each language. The number of nominal expressions varies per age group, especially in bilinguals. However, there are no significant differences in either age group or sample when compared crosslinguistically. The developmental patterns across languages are rather similar in monolinguals, although it could not be confirmed by a two-factorial analysis (due to the data distribution). At the same time, based on the absence of significant differences in either comparison within and across age groups, this assumption is plausible. In bilinguals, the developmental patterns across languages are also similar, as confirmed by a difference test for dependent samples, although they have a different shape if compared to the monolingual ones.

Along with nominal referential expressions, both monolingual and bilingual children use a large number of overt pronominal expressions (PROs and DEMs) with the information status *accessible*, ranging in monolinguals between 14%-18% in Russian and 19%-27% in German and in bilinguals between 20%-35% in Russian and 14%-42% in German. In the comparison of the whole samples, German monolinguals use significantly more overt pronominal expressions than Russian monolinguals. At the same time, although German monolinguals use more overt pronominal expressions in each age group, the difference is significant only in 6-year-olds. In the crosslinguistic comparisons across age groups, no significant differences were found. Bilinguals, on the other hand, use pronominal expressions almost equally in each language (29% in German and 26% in Russian) if compared as the whole sample. Similarly to monolinguals, they also use more pronominal expressions in German than in Russian at age 4 and 5, whereas at age 6 they use more PROs in Russian. However, the differences are not significant in either the within-age-group comparisons or the

comparison of the whole sample. There is also no difference in the development over age in either of their languages, confirmed by a difference test for dependent samples. It should be stressed again that the use of overt pronominal reference for reintroducing referents might be adequate under certain circumstances, e.g., when a referent is clearly identifiable.

The use of zero reference can also be observed in reintroduction contexts, to a higher degree in Russian than in German and to a lesser degree in monolinguals than in bilinguals (in monolinguals it ranges from 0%-5% in Russian and 0-3% in German, in bilinguals from 4%-8% in Russian vs. 2%-5% in German). However, no significant differences could be confirmed for either of the within-age-group comparisons (no statistical tests were done across age groups due to the small data size). Overall, the use of zero reference remains rather marginal in all age groups and samples, which indicates a good awareness of the need for reintroducing referents, at least with overt pronominal expressions if the reference maintenance is interrupted.

Thus, for the most part, the results support the hypothesis on language-specific performance but similar pragmatic development over age (Hpr3a) regarding the use of nominal and pronominal reference for reintroducing referents in narratives in monolinguals as well as in bilinguals.

Developmental patterns and changes over age

With regard to the developmental patterns and changes over age (RQpr3b), the findings are not always consistent with the corresponding specific predictions, although the hypothesis itself holds for both languages and for monolingual and bilingual children. In particular, although the results support the specific prediction of predominant use of nominal (definite) reference in both languages and all samples, there is no simultaneous increase of nominal reference in monolinguals, as predicted for the analyzed age range but only in bilinguals. However, the number of nominal expressions in monolinguals is already very high at age 4 in both languages, possibly explaining the lacking increase of nominal reference in the monolingual samples.

The same holds for the use of pronominal reference, predicted to decrease over age: given that the number of pronominal expressions is already low at age 4, there is no significant developmental change between age 4 and 6 in monolinguals, whereas in bilinguals, who use more pronominal expressions at age 4 than monolinguals do, there is a slight decrease in their use over age, taking place simultaneously in both languages. The decrease, however, is only significant in German, and the difference across age groups disappears after post-hoc tests. Thus, the predicted decrease is not strong enough to confirm the corresponding prediction and cannot be considered to be a developmental change within the analyzed age range.

With regard to the use of zero reference, which is not suitable for reintroducing referents and was expected to be marginal in all age groups and samples, no specific predictions were made concerning developmental changes. The use of zero reference proves to be marginal

with a slight decrease over age, but no statistical test could be performed in this respect due to the small data size.

Overall, the results for reintroducing referents compared crosslinguistically do not contradict the corresponding hypothesis (Hpr3b), stating that developmental patterns go in the same direction towards a more systematic use of specific types of referential expressions in both languages and that developmental changes, if any, occur at the same time across languages. The specific predictions, however, cannot be fully confirmed for either the monolingual or bilingual samples. In general, similarly to the results for reference maintenance, the findings suggest that bilingual and monolingual children apply similar referential strategies from early on and demonstrate a systematic use of nominal and, to a lesser degree, pronominal referential expressions for reintroducing referents in the analyzed languages.

Considering the overall use of referential expressions for introducing, maintaining, and reintroducing referents in narratives in crosslinguistic comparison, one can tell that there is almost no difference between the languages, either in the pragmatic use of reference or in the developmental patterns of bilingual children when the distribution of referential expressions with the same information status is concerned. It suggests that bilingual children follow similar referential strategies in constructing a (coherent) discourse in both of their languages, using grammatically appropriate language-specific referential devices within each language and, if applicable, staying within grammatical constraints of the corresponding language, as demonstrated in the use of zero reference for maintaining referents. These findings are not surprising *per se,* given that these are the same children. However, as can be seen from the crosslinguistic comparisons of monolingual samples, also monolingual children apply mostly similar referential strategies in the analyzed languages, except for the introduction of new referents. Thus, these findings speak in favour of a more universal pragmatic development in the use of reference for maintaining and reintroducing referents in the narrative discourse, at least with regard to Russian and German.

The results are generally compatible with the findings from the previous research on the use of reference in crosslinguistic comparison. As already mentioned in the summary, many studies considered certain referential strategies as universal (e.g., Berman & Slobin 1994; Hickmann et al. 1996; Verhoeven 1993; inter al.), whereas others reported on language-specific strategies with regard to referential choice in e.g., French, Spanish, German, Chinese, Greek, or Turkish (cf. Aksu-Koç & Nicolopoulou 2014; Hickmann & Hendriks 1999; Kail & Sanchez y Lopez 1997; Nicolopoulou et al. 2011; inter al.). Given the diversity of languages, methods of analysis, and partly contradictory findings, based on different types of discourses and methodologies, it cannot be claimed with certainty that the identified patterns are indeed universal. More research in this domain is still needed.

On the other hand, the differences in the developmental patterns across languages could be partly explained by the functional complexity of different languages, which may influence children's pragmatic performance and development (Hickmann & Hendriks 1999). It was

observed in crosslinguistic comparison that monolingual children of the same age can be more advanced in one language than in the other, e.g., with regard to early pragmatic competence in Korean, Japanese, or English (Clancy 1993; Guerriero et al. 2001; Guerriero et al. 2006) or to the introduction of referents in narratives of Greek, English, and Turkish children (Aksu-Koç & Nicolopoulou 2014), who demonstrated different pragmatic competence, based on the same narrative task. In general, differences in referential systems of various languages may give more insight into the universal and language-specific aspects of reference.

With regard to the performance and development of bilinguals in crosslinguistic comparison, several studies reported domain-specific differences. For example, Chen and Lei (2012) documented domain-specific preferences of Chinese-English bilingual children, who differed from English monolinguals in the use of reference for introducing new referents and from Chinese monolinguals in the use of reference for reintroducing referents, whereas Serratrice (2007a) showed different patterns in bilingual acquisition of Italian and English. In this respect, it would be especially interesting to investigate bilingual pragmatic development in language combinations where one of the languages is the same, e.g. Russian-French and Russian-Japanese. In the study of Kyuchukov (2000), for example, it was demonstrated that Turkish-Bulgarian and Turkish-Dutch bilingual children behaved differently with respect to the introduction of referents, which may also be related to crosslinguistic influence towards one or the other language. In light of the previous research, the findings suggest that bilingual development is complex and crosslinguistic influences are possible.

9 Overall summary and conclusions

9.1 Overview of the results of the study

This dissertation was concerned with the grammatical and pragmatic use of referential expressions in picture-based narratives of bilingual and monolingual children in Russian and German. First, all referential expressions produced by children while telling a story (FOX or CAT stories serving as picture stimuli) were investigated with regard to their types and general distribution in narratives as well as possible crosslinguistic interactions, as Russian and German exhibit different means for expressing definiteness grammatically. The analyses were performed in intra- and crosslinguistic comparisons of the whole samples as well as within and across age groups for all types of referential expressions in order to trace children's performance and development over age in both languages. At the next step of analysis, the pragmatic use of referential expressions was investigated, with the information status of a referent taken into account. In the present study, three information statuses were differentiated: *new, given, accessible*, bound to the cognitive activation and degree of accessibility of a referent and considered to be among the major factors influencing referential choice. This classification was based on theoretical approaches to referential choice, following Chafe (1987) and Lambrecht (1994), and applied to child narrative discourse. In particular, the study examined how the distribution of referential types used for introducing, maintaining, and reintroducing discourse referents changes according to the information status of a referent at a given point of discourse. The analyses of the main types of referential expressions were performed in the whole samples as well as within and across age groups in order to compare performance and development of monolingual and bilingual children at different ages and to trace developmental patterns and changes in the pragmatic use of referential expressions in the investigated age range. All analyses were done in both investigated languages in intra- and crosslinguistic comparisons, with special attention to language-specific versus more universal pragmatic development.

The results were summarized and discussed in the previous chapter. Here, only the main results are mentioned in brief. It should be stated beforehand that not all hypotheses and specific predictions with regard to the use of referential expressions in children's narratives were fully supported and not all research questions could be answered in full. However, the results revealed interesting patterns which were partly in line with the hypotheses and partly not, mainly because the children's performance surpassed the expectations.

With regard to the grammatical use of referential expressions, monolingual as well as bilingual children produced, as expected, all types of referential expressions in all age groups. Although the types of referential expressions vary in the analyzed languages, bilingual children of the analyzed sample seemed to be well aware of differences in the systems of reference from early on and used referential expressions in a language-specific

manner. This evidence supports the Separate Development Hypothesis (SDH) that there is early separation of grammars in bilingual acquisition (de Houwer 1990).

As for the possible crosslinguistic interactions, predicted to be minor, if present at all, bilingual children indeed used bareNs in German, as expected, along with defNPs and indefNPs. However, they used them to a very small degree, mainly in the youngest age groups, and differed significantly from monolingual children, who also used bareNs in the youngest age groups, only in the group of 6-year-olds. This and other manifestations of minor crosslinguistic interactions are acceptable in the framework of the non-autonomous version of SDH (Hulk & Müller 2000; Müller & Hulk 2001), which was adopted for this study. Other predicted interactions practically did not occur in the analyzed data. However, interesting evidence was found with regard to the unexpected use of demNPs in Russian in the bilingual sample in all age groups, which so far could only be explained by an attempt to express definiteness grammatically, given that this type of referential expression was absent in the Russian monolingual data and was not found in German, either in monolinguals or in bilinguals.

With regard to the children's performance and development in Russian and German in intralinguistic comparisons, predicted to be similar, the main findings suggest that, although bilingual children demonstrate partly different performance in one or another age group or partly different developmental patterns in comparison to monolingual children in the analyzed age range, by age 6 or sometimes already by age 5 both monolingual and bilingual children show similar performance in each of their languages in the use of almost all referential expressions.

One of the unexpected differences between monolingual and bilingual performance and development can be illustrated by the developmental pattern in the use of DEMs. DEM is argued to be a default pronominal form in child language in German, since it emerges earlier than PRO and children use this type of pronoun almost exclusively at age 2-3 before they start using PRO as well (as discussed in Chapter 4). In the present study, bilingual children extensively used DEMs at age 4 and then significantly reduced their use by age 5, when it became comparable to that of monolinguals, which remained almost unchanged in the analyzed age range. Despite the difference between monolinguals and bilinguals in this particular developmental pattern, the results indicate that, on the one hand, bilingual children of the investigated sample indeed follow the first language acquisition path in German, as predicted (they just do it at a later period, since their exposure to L2 German starts later than in monolingual children), and that, on the other hand, they are able to reorganize their system of reference rather quickly. At the same time, the specific prediction of significant decrease in the use of DEMs and simultaneous increase in the use of PROs in both samples could not be confirmed, given that except for the decrease in the use of DEMs in bilinguals between age 4 and 5, the use of DEMs and PROs remained stable over age in both samples.

In crosslinguistic comparisons of children's performance and development in the grammatical use of referential expressions, the distribution of referential types was language-

specific, but generally similar between Russian and German in the use of nominal and overt pronominal reference (taken as more general categories for crosslinguistic comparison). The only differences concerned the use of nominal reference in bilinguals and the use of zero reference in monolinguals, the latter being clearly related to different grammatical constraints in Russian and German. The specific prediction with regard to the simultaneous increase in the use of zero reference and decrease in the use of overt pronominal reference in both languages of bilingual children could not be confirmed either. Another specific prediction of simultaneous development in the use of nominal reference could be confirmed for monolinguals, but not for bilinguals, who continuously increased the use of nominal reference in German while they did not increase it in Russian because it was already at the same level at age 4 as it was at age 6.

In general, the results on the grammatical use of referential expressions revealed many similarities as well as differences in performance and development over age of monolingual and bilingual children within and across languages. Some of them could not be sufficiently explained, as the differences could also be related to different pragmatic development across samples and languages. Thus, at the next step of analysis, the pragmatic use of referential expressions was investigated, taking the information status of a referent into account.

With regard to the pragmatic use of referential expressions, examining the role of information status for referential choice, the results strongly suggest that monolingual and bilingual children in all age groups are sensitive to the distinction between *new*, *given,* and *accessible* information statuses and that their referential choice changes according to the information status of a referent during the discourse. Children demonstrated a good understanding of the pragmatic use of referential expressions from early on and showed continuous development towards a more systematic use of appropriate referential expressions for introducing, maintaining, and reintroducing discourse referents.

Monolingual and bilingual children of the analyzed samples used predominantly nominal referential expressions for introducing new referents (information status *new*), although the proportion of indefinite reference did not exceed the definite one even in the oldest age group, predominantly pronominal and zero referential expressions as well as nominal ones for maintaining discourse referents (information status *given*), and predominantly definite nominal referential expressions for reintroducing discourse referents (information status *accessible*). The proportions of almost all predominant expressions increased over age in both samples and languages. With respect to the use of demNPs in Russian by bilingual children, the unexpected finding, already mentioned previously, was that no significant differences were found in relation to the information status of a referent. This suggests that their use is not related to a specific discourse function, but more probably to marking definiteness grammatically, as proposed in the discussion of results.

In intralinguistic comparisons, both monolingual and bilingual children demonstrated, for the most part, similar pragmatic performance and development, developing better pragmatic competence over age. Here as well, bilingual children performed similarly to monolingual children with regard to the use of almost all referential expressions by age 6 at the latest,

often already at age 5. Therefore, the results support the corresponding hypothesis and specific predictions about developmental patterns in each of the analyzed languages. At the same time, there were several interesting differences in Russian as well as in German, which were already discussed in the previous chapter, e.g., with regard to the use of defNPs and indefNPs for introducing new referents in German and postVbareNs in Russian, defNPs for maintaining and reintroducing discourse referents in German and bareNs in Russian for the same purpose. One of these differences is especially interesting and is therefore highlighted below again.

Although in general children of the analyzed samples did not use predominantly indefinite nominal reference for introducing new referents yet, bilingual children continuously increased the use of indefNPs in German between age 4 and 6, whereas monolingual children did it only between age 5 and 6, after they first switched to the use of defNPs at age 5. This finding was somewhat unexpected. As already discussed in the previous chapter, the change from indefNPs at age 4 to defNPs at age 5 in monolinguals could be, on the one hand, related to the overall growing syntactic and pragmatic complexity from simple naming of discourse referents in reduced propositions (usually with indefNPs) to their introduction in more complex sentences and, on the other hand, the children's assumption that defNP is the appropriate type of referential expression for this purpose and that monolingual children realize only later, at age 6, that it is the function of indefNP. It was furthermore mentioned that the unexpected result could also be related to the effect of the small group size and be more or less random. To be sure, this finding should be verified with a bigger sample. As for the performance and development of bilingual children in this respect, it could be tentatively interpreted in terms of better metalinguistic awareness and more advanced pragmatic development attributed to bilingual children due to their exposure to two languages, as has been repeatedly pointed out in previous research. It seems that bilingual children continuously increased the use of indefNPs for introducing discourse referents along with increasing syntactic complexity. Additionally, they used indefNPs more often and earlier than monolingual children. In Russian, the same bilingual children also increased the use of postVbareNs (interpreted as indefinite in introductory sentences) over age and caught up with monolinguals by age 5.

Furthermore, the additional differentiation between the information statuses *given* and *accessible* indicates that children very well understand the need to reintroduce discourse referents when continuous reference maintenance has been interrupted and that they choose (definite) nominal referential expressions systematically from age 5 on (more strongly in German than in Russian) to a much higher degree than pronominal expressions. In this way, they demonstrated that they can take the perspective of the listener into account and that they are not governed by their own perspective alone. They did so despite the fact that the methodology of the task presentation implied the mutual knowledge condition, as both the speaker and the listener could see the picture stimuli.

In crosslinguistic comparisons, pragmatic development in bilinguals was strikingly similar in both languages, in part almost parallel, in contrast to their performance which remained

language specific, in line with the corresponding hypothesis. This is not surprising, as these were the same children and it could be assumed that they were applying similar referential strategies in both of their languages. However, it was not only the bilingual children who did so – monolingual children did it quite often as well (except for e.g., the use of 0PROs for reference maintenance in Russian vs. German). This can be explained by different grammatical constraints with respect to 0PROs in these languages or with respect to the use of definite and indefinite reference for introducing new referents, as was demonstrated above. Despite several differences, the results bound to the crosslinguistic comparisons speak in favour of a more universal pragmatic use of reference in many respects, at least as far as the analyzed type of narrative discourse is concerned. It should be stressed again that children's performance in the analyzed samples remained language specific at all times and that no significant crosslinguistic pragmatic interactions were detected.

Overall, the results of the study support the findings from the previous research which argue for the late pragmatic development of discourse-internal functions in language acquisition, as already discussed in the previous chapter. At the same time, several findings pointed out above suggest that some pragmatic developmental changes start much earlier, e.g., already at age 4 or 5. At least, this was demonstrated for the analyzed monolingual and bilingual samples in the Russian-German language combination. Moreover, although sometimes the analysis of the whole samples gave the same results as the analysis within age groups, many differences in performance and/or development of monolingual and bilingual children in the investigated age range could only be detected because the samples were composed from three comparable age groups, which allowed for detailed within- and across-age-group comparisons. Thus, building up several age groups in the analyzed age range was essential, even if it caused some problems bound to the statistical analysis of smaller groups.

At this point, it must be stressed again that the results of the study hold, in the first place, for the investigated samples and for the specific type of narrative discourse – picture-based narratives that were elicited with a specific method of task presentation and were coded in a specific manner. They should not be generalized directly for other types of narrative tasks or for the same types of tasks but with a different methodology, as children's performance may change depending on the type of task or the method of task presentation, which was investigated and documented in previous studies (see Chapter 3 for the overview). This is also a frequent problem with comparison of results from different studies in previous research, and this is why the results of the present study may partly contradict the previous findings. At the same time, the present study contributes new findings to research domains not yet explored, provide valuable information to be taken into account and new ideas for further research on reference in different languages and populations. Some concrete ideas for future research are proposed in section 9.4 of the current chapter, but first, a few words should be said about the limitations and the implications of the present study.

9.2 Limitations of the study

The study was rigorously conducted, and the data were properly analyzed. Nonetheless, there are several issues to be addressed here. Beside expected difficulties with sampling of participants, selection procedure, and drop-outs, there were certain challenges bound to the participants' selection criteria, composition of the narrative corpus for the final analysis, and the analysis of the data itself.

In particular, the first consideration concerns the participants' selection criteria, or better said, the composition of the samples. Although potential participants of the study were from the very beginning carefully controlled for many factors and chosen according to strict criteria, there is still certain variability in the samples, especially in the bilingual one. Generally, the diversity in individual language histories as well as in language and social environments is considerable, and there is no guarantee that in the analyzed samples such diversity was not present. Additionally, although in the framework of this study children's overall language proficiency was accounted for, language input in terms of previous narrative experience, which is an important factor to be taken into account for further analyses, was not controlled for and could possibly influence or better explain the outcome of the results.

Also, in principle, the bilingual sample could be more fine grained with regard to age of onset (AoO) and length of exposure (LoE) to L2 German. In the present study, the selection criteria corresponded to a specific goal, namely to ensure one type of bilingual language acquisition (2L1path of acquisition), but, for future research, one could think of building several groups with smaller ranges of AoO and LoE to investigate differences in the pragmatic and narrative development bound directly to these specific parameters. On a general note, it can be said that there are always additional factors which could be taken into consideration, but it should be carefully considered whether they are essential for a study according to its goals and would not go beyond the scope of an investigation.

Furthermore, with regard to the narrative corpus, several narratives had to be excluded from the analysis due to bad quality of recording, the child speaking too incomprehensibly or mistakes in the test procedure, as already mentioned in Chapter 5. Although these cases were exceptional, they slightly affected the overall number of available narratives per age group and sample and partly resulted in uneven distribution of stories per age group. This situation suggests that, if possible, bigger samples should be tested initially in order to obtain a sufficient amount of data for analysis.

Several problematic issues were bound directly to the data analysis. First, in the process of data coding some mentions of referents rendered ambiguous interpretation in terms of which discourse referents they were referring to. Such cases were present in both monolingual and bilingual samples and could mainly be resolved with the help of so-called subsidiary devices (as described in Chapter 2), such as grammatical gender, semantic compatibility with the context, etc. Often, code-switching or the use of incorrect grammatical gender caused additional problems with interpretation of reference in narratives of bilingual children. In such a case, the whole story had to be analyzed for certain patterns in labeling of the story protagonists as well as individual referential strategies. This emphasizes once

again, that behind the numbers there are real stories and it is almost impossible to abstract away from their content, as these are precisely the stories that provide valuable information about the nature of many pragmatic phenomena in narrative discourse.

With respect to the statistical analysis, another limitation was related to the data size. In the analysis of certain referential expressions, the data distribution or the extremely small number of observations per age group did not allow for certain statistical analyses. Such problems can mainly be resolved if bigger samples are analyzed. This, however, is not always the case, as could be seen in some of the analyses of the whole samples in the present study. Sometimes, the observations are just extremely rare, and the normal data distribution cannot be expected. Finally, statistical analyses also have their limits.

9.3 Implications of the study

Beside the actual contribution to the research in the domain of reference in child narrative discourse as well as narrative and pragmatic development of monolingual and bilingual children in two particular languages, Russian and German, the findings of the study can be useful for different narrative assessments targeting the evaluation of general narrative abilities or specific components of the microstructure. The results of the study give insights into what can be expected in children's narrative production in Russian and German at certain ages with regard to referential cohesion, which is one of the basic components of pragmatic and narrative competence. The study provides important evidence for narrative development of monolingual and, even more importantly, bilingual children with language combination Russian-German. Among other results with regard to the use of reference in narrative context, it was shown that, despite some differences in developmental patterns, bilingual children with the 2L1 path of acquisition demonstrate similar performance and development (in comparison to monolingual children of the same age) by age 5 or age 6 at the latest, and in several respects they might be even more advanced.

Furthermore, as mentioned in the introduction, bilingual children's language capacities, especially of bilingual children with migrant backgrounds, are still often underestimated by society, and bilingual language acquisition is even considered to be disadvantageous for learning the majority language of the country. The findings from the present study could be seen as a counterargument for these opinions and contribute to the general discussion on this topic, supporting research findings that credit bilingual children with successful acquisition of both of their languages.

Another practical implication of the study is related to the contribution of the narrative data to the CHILDES database. A big part of the transcribed data used in the present study (collected in the framework of a bigger project) was already contributed to the CHILDES database. Further data sets can be made available to other researchers via CHILDES. Not only the transcripts of stories but also the coding system elaborated in the present study can contribute to future research, allowing for further analyses far beyond the scope of the present study, as many additional parameters were coded along with parameters which were

relevant for the current analysis. Hence, open access to the analyzed data can initiate further analyses and possibly lead to a more profound understanding of the provided findings based on the analysis of the same data sets.

9.4 Suggestions for further research

Much has been done already in the domain of reference and pragmatics as well as in child narrative discourse. Researchers investigated many aspects of reference in different languages in many different contexts and language constellations. Many of these studies were reviewed in this dissertation. The present study also made a small contribution to this domain of research. However, this field of research is by far not exhausted, and many questions remain unanswered or not yet even asked, especially with respect to reference and discourse strategies in bilingual contexts. Based on the findings from the present study and general considerations, several suggestions for further research are given below.

With regard to the use of particular types of referential expressions, it would be interesting to further analyze the use of demNPs in Russian in bigger samples in order to find more evidence for their use as substitutions for defNPs (absent in Russian) to mark definiteness of a referent grammatically. The target of this analysis would be to find correlations with e.g., language dominance, length of exposure, relation to the use of defNPs in German, etc. in bilingual children who use this type of referential expression in Russian. Equally interesting would be a further analysis of indefNPs in German used for introducing new referents in narratives of both monolingual and bilingual children, as the development in their use over age was somewhat unexpected and controversial.

In addition to the already investigated factors influencing the use of reference in the child narrative discourse, other factors which may also influence referential choice can be analyzed with the same data sets. As pointed out above, the data were coded for additional parameters, such as syntactic role of the referent and its syntactic position relative to the verb, syntactic role and the type of referential expression of the antecedent, the number of topics in a single clause, type of clause, etc. Therefore, it would be possible to conduct more analyses in this direction using the available data. The data were not coded for prosodic features, but prosody is an important factor in the use of reference and should be taken into consideration in future research as well. Generally, working with the same data sets would help to avoid additional influences related to methodological differences in task procedure, data coding, composition of samples, etc., often making the comparability of results difficult.

Another domain of child narrative discourse related to the use of reference is discourse coherence. Given that “coherence and cohesion interact at all times during discourse processing” (Karmiloff & Karmiloff-Smith 2002:165), the development of discourse and narrative abilities represents a complex interplay of factors which have to be taken into account for constructing a coherent discourse. It is therefore necessary to study “how coherence and cohesion relate to one another dynamically at every stage of children’s

progressive discourse development" (Karmiloff & Karmiloff-Smith 2002:176), in addition to studying them separately.

With regard to the monolingual and bilingual samples to be studied, it would be desirable to extend the analysis performed in the current study to other cohorts, e.g., bilingual children with other types of language acquisition or with more fine-grained AoO and LoE within the same type of bilingualism, as mentioned above; or older monolingual and bilingual children in further age groups subsequent to the analyzed age range, e.g. 7-, 8-, 9-year-olds, to provide a differentiated analysis for further pragmatic and narrative development of children in language combination Russian-German. Furthermore, it would be interesting to conduct the same type of analysis in other language combinations where one language is the same as in the present study, e.g., Russian-Dutch, Russian-English, Russian-French, and to compare the findings to the results of the present study.

Further, narrative and pragmatic development of children could be studied taking into account socio-economic status (SES) which proved to be an important factor for language development in many linguistic domains. It is also related to the quality and quantity of language input in each language, and, in addition, to the exposure to different discourse types and genres from early on. Children who got used to different ways of narrating and communicating in general and/or had reading experience might develop more differentiated narrative skills, including referential strategies. This brings us back to the complex issue of comparing bilingual and monolingual children's performance to adult's performance, which was addressed in Chapter 1. Adults, first of all parents and caregivers, are the speakers who provide valuable language input to children from the first moment of their life. However, adults are not a homogeneous group of people, they are very different, and their discourse competence is different too. It is therefore necessary to study different groups of adults more closely, be they bilinguals of different types, heritage speakers, monolingual adults, adults of different ages, adults with high or low SES, with different educational and language experiences, etc. in order to know what kind of input they provide, what discourse and narrative strategies do they use in their communication with children, etc. Studying children's performance in relation to the input they receive from their parents, caregivers, kindergarten teachers, etc. would help to disambiguate the possible mismatch between the "normative" discourse and the discourse produced by a specific group of children under investigation, particularly with regard to the research on heritage language acquisition. In addition, the acquisition of narrative competence might be related to crosscultural differences, as pointed out by Aksu-Koç, Nelson, and Johnson (2013:n.p.): "Crosscultural differences emerge as a fascinating source of diversity that needs to be taken into account in addition to crosslinguistic variation".

Of course, all these suggestions and considerations would require a huge number of new studies in different contexts and language settings. Many of these issues were surely already addressed during the completion of this dissertation. Others will be addressed in the future. Claude Levi-Strauss, a modern philosopher, once said that "language is a form of human reason, which has its internal logic of which man knows nothing." (AZQuotes, n.d.) On the

contrary, through research we have come to know something, and we continue to learn more. Innumerable studies, including studies in the domain of reference and discourse in general, bring us closer step by step to an understanding of the internal logic of the human reason as well as of acquisitional processes of language and communication. Hopefully, the present study can contribute to this overall goal and provide new insights into the narrative discourse of bilingual and monolingual children in Russian and German.

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List of Abbreviations

Abbreviations used in the text (in alphabetical order)

2L1	bilingual first language acquisition
aL2	adult second language acquisition
ANOVA	analysis of variance
AoO	age of onset
biling	bilingual (used in graphs)
cL2	child second language acquisition
CPH	Critical Period Hypothesis
CU	communication unit
deu	German (coding in R-graphs)
FDH	Fundamental Difference Hypothesis
gr	grammatical
H	hypothesis
H0	null hypothesis
L1	first language
L2	second language
LAD	Language Acquisition Device
LoE	length of exposure
monoling	monolingual (used in graphs)
n	number
NP	noun phrase
pr	pragmatic
RQ	research question
rus	Russian (coding in R)
SES	socio-economic status
SSV	Sprachscreening für Vorschulalter
NWR	Non-Word Repetition
SDH	Separate Development Hypothesis
SLI	specific language impairment
SST	sentence/sentence thought
TD	typically developed
UG	Universal Grammar

Abbreviations used for coding the data (in alphabetical order)

0PRO	zero pronoun
0V	clause without a verb
0Vfin	clause without a finite verb
0VbareN	bare noun in a verbless clause
Acc	accessible
ACC	accusative
b-birds	baby birds
bareN	bare noun
C0	previous clause / same CU
C1	previous clause / different CU
C2	two clauses back
C3	three or more clauses back
DAT	dative
defNP	definite noun phrase
DEM	demonstrative pronoun
demNP	demonstrative noun phrase
DO	direct object
DO2	dislocated DO
DS	direct speech
FM	first mentioned
GEN	genitive
Giv	given
indefNP	indefinite noun phrase
INSTR	instrumental
IO	indirect object
IO2	dislocated IO
LD	left dislocation
LOC	locative
M	maintained
m-bird	mother/mama bird
MF	middle field
Mn	main clause
New	new
NOM	nominative
p-bird	papa bird
PF	prefield

PO	prepositional object
PO2	dislocated PO
possNP	possessive noun phrase
PostF	postfield
PostV	postverbal position
postVbareN	postverbal bare noun
PreV	preverbal position
preVbareN	preverbal bare noun
PRO	personal pronoun
RD	right dislocation
Ref	reference
Rel	relative clause
RI	reintroduced
S	subject
S2	dislocated S
Sub	subordinate clause
T	single topic
T1	primary topic
T2	secondary topic
T3	additional topic
TD	dislocated topic
Vfin	clause with a finite verb

Abbreviations used for annotating examples according to the Leipzig's glossing rules (2008) (in alphabetical order)

1	first person
2	second person
3	third person
ACC	accusative
ART	article
AUX	auxiliary
DAT	dative
DEF	definite
DEM	demonstrative
F	feminine
FUT	future

GEN	genetive
IMP	imperative
INDF	indefinite
INF	infinitive
INS	instrumental
IPFV	imperfective
LOC	locative
M	masculine
N	neuter
NOM	nominative
PASS	passive
PFV	perfective
PL	plural
POSS	possessive
PRF	perfect
PRS	present
PST	past
PTCP	participle
REFL	reflexive
REL	relative
SBJ	subject
SG	singular

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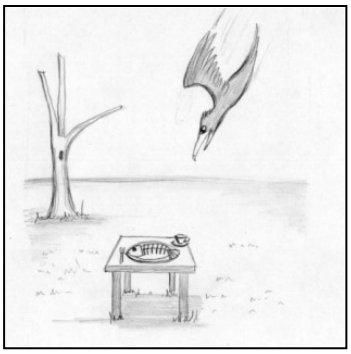
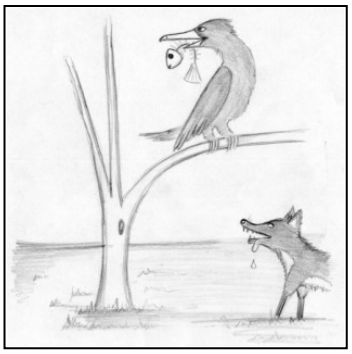
Appendices

Appendix A. Picture stimuli

FOX Story (developed in ZAS Language Acquisition project, see Gülzow & Gagarina 2007)

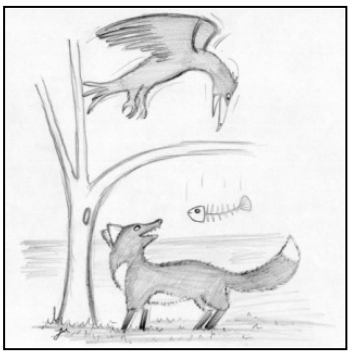


Picture 1



Picture 2

Picture 3



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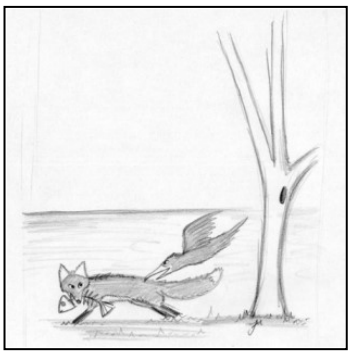

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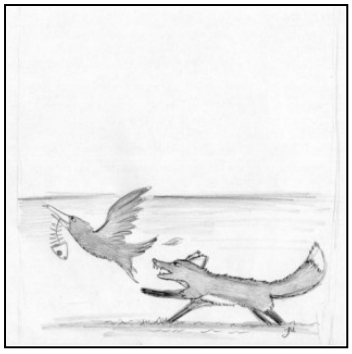
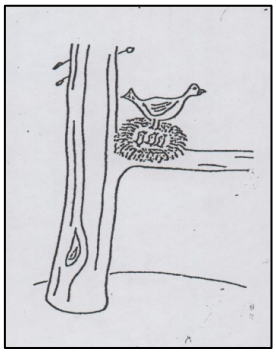
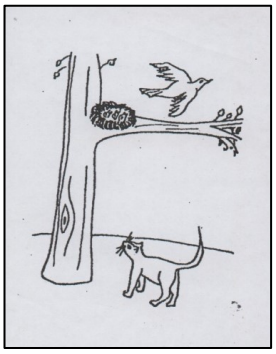


Picture 6

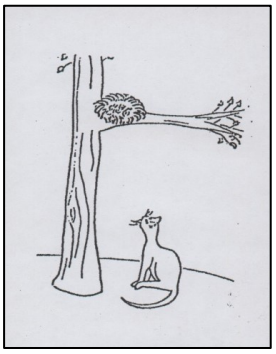
CAT Story (developed by Maya Hickmann, pictures adapted from Hickmann 2003:344)



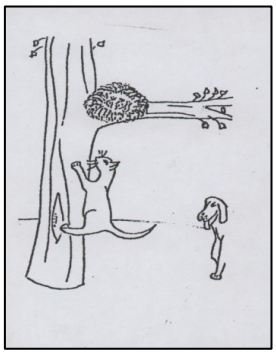
Picture 1



Picture 2

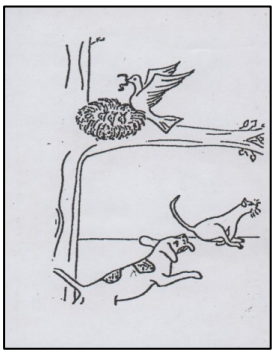


Picture 3



Picture 4

Picture 5



Picture 6

Appendix B. Selection of transcription signs used in the present study

- Repetition of words:
  - one repetition: either [/] or [x 2] after the word;
  - multiple repetitions: [x N] (N= number of repetitions).
- Breaks/Pauses: # short break, ## long break, ### very long break. (In a newer version the # sign is replaced by points: (.) for short break, (..) for long break, (…) for very long break.)
- Code-switching: @csr directly after the respective word.
- Onomatopoetic sounds: @o or @onom directly after the word, e.g., brr@onom.
- Interjections: @i directly after the word.
- [=] – is used for explanation: e.g., He [=Peter] is a nice boy.
- < > brackets are used whenever it refers to more than a word.
- Self-correction: [//] directly after the word, e.g., der [//] die Katze; if more than a word is corrected, then all concerned words are put between < > brackets, e.g., <ich fahren> [//] fahrden [*] [:fuhr] Rad.
- Corrections: [*] – error marker; [: …] – correction; e.g., esst [*] [: isst].
- [?] – can be used behind a word/phrase whenever it is not clear.
- Interruptions:
  - +/. and +, I - interruption through others (the two segments are treated as a single utterance).
  - +… or +..? - trailing off (new line is started afterwards).
  - +//. oder +//? - self interruption / discontinued utterance (new line is started afterwards).
- Missing words: marked by a 0 preceding the word, e.g., I want 0to go home; 0word – general marker for missing words; further missing categories can be specified through additional markers: 0word-s – missing subject; 0word-v – missing verb; 0word-o – missing object; 0word-d – missing determiner; 0word-p – missing preposition; etc.
- Unintelligible segments: xx – a single word; xx xx – two words if it is clear that two words were pronounced; xxx – not a single word, unintelligible segment.
- Long vowels: sooo → so:.
- Phonological fragments: &schie.

Appendix C. Examples of transcribed and coded stories

To illustrate how stories have been transcribed and coded, the four examples below present two stories in Russian and German told by the same bilingual child and two more stories told by monolingual children in the corresponding languages.

There are obligatory and optional principles for transcribing the data in the CHAT format. The following examples demonstrate how stories are transcribed and coded in order to be processed by the CLAN program. Transcripts in Russian have been first done in Cyrillic script and then converted automatically into Latin script through the MORCOMM programme. The transliteration follows certain criteria so that all signs could be processed by CLAN (for more details see Gagarina, Voeikova, & Gruzincev (2003)).

Not all transcripts contain exactly the same headers, but they all have obligatory headers, such as @Begin, @Languages, @Participants and @End, as well as additional headers, such as @Filename, @Date of birth, @Date of record, etc.

In a more recent CHAT version several headers were replaced by @ID headers containing the same information about participants in a different format, e.g.,

@ID: deu|bd5_050_fox|050|5;8.7|female|||Target_Child|||.

At the time the data for the present study were transcribed and coded, mainly the initial format was used. The names of children, experimenters, transcribers, and coders have been anonymized. No special header was used for proof-reading and my own coding.

Russian (*053, 5;11, bilingual)

@Begin
@Languages: ru
@Participants: 053 Target--Child, EX1 Experimenter
@Filename: br5_053a_cat.cha
@Linguistic background: German and Russian, bilingual
@Sex of 053: male
@Date of birth of 053: 17.04.2002
@Date of record: 18.03.2008
@Age of 053: 5;11
@Transcriber: TR1
@Coder: C1, C2
@Location: kindergarten
@Comment:
@Bg: Cat Story (Beginn Cat Story)
*EX1: davaj nachnem, davaj.
%mra: PTL|davaj V|nachat'&PFV:TRANS-FUT:1P PTL|davaj
@G: 1.
*053: m, ptichka xochet, e~, posmotret', gde kushat'.
%cod: ptichka|T-bareN-S-NOM-Mn-PreV-New-FM-Ref=m-bird
%mor: PTL|m N|ptichka&ANI:FEM-SG:NOM@:nv V|xotet'&IMPF:INTRANS-PRES:3S INTER|e~ V|posmotret'&PFV:TRANS-INF [^c-S:V-P:0] ADV|gde V|kushat'&IMPF:TRANS-INF [^c-AP:V:0-P:3]
*EXX: tak, xorosho.
*053: togda ona uvidela, gde kushat' i [2] uletela.
%cod: ona|T-PRO-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=m-bird
word|T-0PRO-S-Mn-Vfin-Giv:C0:S:PRO-M-Ref=m-bird

%mor: ADV|togda PRO|on&-SG:FEM:NOM@:pers-v1-as-pt V|uvidet'&PFV:TRANS-PAST:SG:FEM ADV|gde V|kushat'&IMPF:TRANS-INF [^c-AP:V:0-P:3] CONJ|i V|uletet'&PFV:INTRANS-PAST:SG:FEM [^c-AP:S:V2-P:0]
*EXX: tak, xorosho.
@G: 2.
*053: i togda kiska prishla i xotela e~ti@errpro be~biki@errn skushat'.
%cod: kiska|T1-bareN-S-NOM-Mn-PreV-New-FM-Ref=cat
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:bareN-M-Ref=cat
e~ti be~biki|T2-bareN-S-NOM-Mn-PostV-New-FM-Ref=b-birds
%mor: CONJ|i ADV|togda N|kiska&ANI:FEM-SG:NOM@:nv V|prijti&PFV:INTRANS-PAST:SG:FEM CONJ|i V|xotet'&IMPF:INTRANS-PAST:SG:FEM PRO|e~tot&-PL:NOM--e~ti@errpro N|be~bik&ANI:MASC-PL:NOM--be~biki@errn@:-dem-nv-ptn V|skushat'&PFV:TRANS-INF [^c-AP:S:V+V:O-P:2]
*EXX: mg, tak, xorosho.
@G: 3.
*053: i togda ona, kiska xotela vverx.
%cod: ona|T-PRO-S-NOM-Mn-PreV-Giv:C1:S:0PRO-M-Ref=cat
kiska|TD-bareN-S2-NOM-Mn-Vfin:RD-Giv:C1:S:0PRO-M-Ref=cat
%mor: CONJ|i ADV|togda PRO|on&-SG:FEM:NOM@:-pers+n-v1--2-as-kot N|kiska&ANI:FEM-SG:NOM V|xotet'&IMPF:INTRANS-PAST:SG:FEM ADV|vverx [^c-AP:S:V:AP-P:2]
@G: 4.
*053: i vot togda sobachka xotela kisku s"est'.
%cod: sobachka|T1-bareN-S-NOM-Mn-PreV-New-FM-Ref=dog
kisku|T2-bareN-DO-ACC-Mn-PostV-Giv:C1:S:PRO-M-Ref=cat
%mor: CONJ|i PTL|vot ADV|togda N|sobachka&ANI:FEM-SG:NOM@:nv V|xotet'&IMPF:INTRANS-PAST:SG:FEM N|kiska&ANI:FEM-SG:ACC@:v1--3-pro+n V|s"est'&PFV:TRANS-INF [^c-AP:S:V:O-P:2]
*EXX: tak, xorosho.
@G: 5.
*053: i vot zdes' on@errpro kisku 0za Schwanz@csr sdelal@errv i xotel@errv skushat'.
%cod: on|T1-PRO-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=dog
kisku|T2-bareN-DO-ACC-Mn-PreV-Giv:C1:DO:bareN-M-Ref=cat
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:PRO-M-Ref=dog
word|T2-0PRO-DO-Mn-Vfin-Giv:C0:DO:bareN-M-Ref=cat
%mor: CONJ|i PTL|vot ADV|zdes'
PRO|on&-SG:MASC:NOM@errpro@:pers-v1--4-as-sob N|kiska&ANI:FEM-SG:ACC
0PREP|za N|schwanz@csr V|sdelat'&PFV:TRANS-PAST:SG:MASC@errv CONJ|i
V|xotet'&IMPF:INTRANS-PAST:SG:MASC@errv V|skushat'&PFV:TRANS-INF
[^c-AP:S:V:O:0PP+V-P:2]
%com: "on" - sobaka.
*EXX: tak, xorosho.
@G: 6.
*053: i tam ona uzhe kushat' prinesla i sobachka kisku verscheucht@csr.
%cod: ona|T-PRO-S-NOM-Mn-PreV-Acc:C3:S:0PRO-RI-Ref=m-bird
sobachka|T1-bareN-S-NOM-Mn-PreV-Acc:C2:S:0PRO-RI-Ref=dog
kisku|T2-bareN-DO-ACC-Mn-PreV-Acc:C2:DO:0PRO-RI-Ref=cat
%mor: CONJ|i ADV|tam PRO|on&-SG:FEM:NOM@:pers-vx--1-pro-as-pt ADV|uzhe
V|kushat'&IMPF:TRANS-INF V|prinesti&PFV:TRANS-PAST:SG:FEM
[^c-AP:S:V-P:2] CONJ|i N|sobachka&ANI:FEM-SG:NOM@:v2--5-pro
N|kiska&ANI:FEM-SG:ACC@:v2--5 V|verscheuchen@csr [^c-S:V:O-P:2]
*EX1: pravil'no, prognala.
%mra: PTL|pravil'no V|prognat'&PFV:TRANS-PAST:SG:FEM
*EXX: spasibo, ochen' xorosho.
@Eg: Cat Story (Ende Cat Story)
@End

Russian (*017, 4;1, monolingual)

@Begin
@Languages: ru
@Participants: 017 Target--Child, EXP Experimentator
@DAte of Birth of 017: 09.02.2002
@Date of record: 29.03.2006
@Filename: mr4_017_fox.cha
@Age of 017: 4:01.23
@Sex of 017: male
@Transcriber: TR1
@Coder: C1, C2
@Location: kindergarten
@Situation: e~ksperimentator raskladyvaet kartinki.
*EXP: nu davaj, rasskazyvaj.
%mra: PTL|nu PTL|davaj V|rasskazyvat'&IMPF:TRANS-IMP:SG
@G: 1
*017: tut ptica za ryboj letit.
%cod: ptica|T1-bareN-S-NOM-Mn-PreV-New-FM-Ref=bird1
za ryboj|T2-bareN-PO-INSTR-Mn-PreV-New-FM-Ref=fish
%mor: ADV|tut N|ptica&ANI:FEM-SG:NOM@:nv PREP|za
N|ryba&ANI:FEM-SG:INSTR@:nv-pn V|letet'&IMPF:INTRANS-PRES:3S
*EXX: ugu.
@G: 2
*017: i ptica sidit s ryboj.
%cod: ptica|T1-bareN-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=bird1
s ryboj|T2-bareN-PO-INSTR-Mn-PostV-Giv:C1:PO:bareN-M-Ref=fish
%mor: CONJ|i N|ptica&ANI:FEM-SG:NOM@:v1--1 V|sidet'&IMPF:INTRANS-PRES:3S
PREP|s N|ryba&ANI:FEM-SG:INSTR@:v1--1-pn
*017: lisa prishla.
%cod: lisa|T-bareN-S-NOM-Mn-PreV-New-FM-Ref=fox
%mor: N|lisa&ANI:FEM-SG:NOM@:nv V|prijti&PFV:INTRANS-PAST:SG:FEM
*EXX: zaxochesh', mozhesh' vzjat' kartinku i polozhit' vot sjuda.
*EXX: a ja tebe polozhu novuju.
@G: 3
*EXX: dal'she.
*017: zdes' lisa gonitsja za pticej.
%cod: lisa|T1-bareN-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=fox
za pticej|T2-bareN-PO-INSTR-Mn-PostV-Acc:C2:S:bareN-RI-Ref=bird1
%mor: ADV|zdes' N|lisa&ANI:FEM-SG:NOM@:v1--2 V|gnat'sja&IMPF:INTRANS-PRES:3S
PREP|za N|ptica&ANI:FEM-SG:INSTR@:v2--2-pn
*017: ptica utashchila rybu u lisy.
%cod: ptica|T1-bareN-S-NOM-Mn-PreV-Giv:C1:PO:bareN-M-Ref=bird1
rybu|T2-bareN-DO-ACC-Mn-PostV-Acc:C3:PO:bareN-RI-Ref=fish
u lisy|T3-bareN-PO-GEN-Mn-PostV-Giv:C1:S:bareN-M-Ref=fox
%mor: N|ptica&ANI:FEM-SG:NOM@:v1 V|utashchit'&PFV:TRANS-PAST:SG:FEM
N|ryba&ANI:FEM-SG:ACC@:v3--2 PREP|u N|lisa&ANI:FEM-SG:GEN@:v1-pn
%sit: e~ksperimentator menjaet kartinku.
*EXX: podozhdi, vnachale vot e~ta.
*017: lisa poprosila u pticy rybu.
%cod: lisa|T1-bareN-S-NOM-Mn-PreV-Giv:C1:PO:bareN-M-Ref=fox
rybu|T2-bareN-DO-ACC-Mn-PostV-Giv:C1:DO:bareN-M-Ref=fish
u pticy|T3-bareN-PO-GEN-Mn-PostV-Giv:C1:S:bareN-M-Ref=bird1
%mor: N|lisa&ANI:FEM-SG:NOM@:v2 V|poprosit'&PFV:TRANS-PAST:SG:FEM PREP|u
N|ptica&ANI:FEM-SG:GEN@:v2-pn N|ryba&ANI:FEM-SG:ACC@:v1
*017: vse.
%mor: PRO|ves'&-SG:NEUT:NOM

@G: 4
*EXX: dal'she.
*017: potom ptica rybu lise brosila.
%cod: ptica|T1-bareN-S-NOM-Mn-PreV-Giv:C1:PO:bareN-M-Ref=bird1
rybu|T2-bareN-DO-ACC-Mn-PreV-Giv:C1:DO:bareN-M-Ref=fish
lise|T3-bareN-IO-DAT-Mn-PreV-Giv:C1:S:bareN-M-Ref=fox
%mor: ADV|potom N|ptica&ANI:FEM-SG:NOM@:v2--3 N|ryba&ANI:FEM-SG:ACC@:v2--3
N|lisa&ANI:FEM-SG:DAT@:v2--3 V|brosit'&PFV:TRANS-PAST:SG:FEM
%sit: otkladyvaet kartinku.
*017: vse.
%mor: PRO|ves'&-SG:NEUT:NOM
@G: 5
*017: potom lisa poprosila rybu.
%cod: lisa|T1-bareN-S-NOM-Mn-PreV-Giv:C1:IO:bareN-M-Ref=fox
rybu|T2-bareN-DO-ACC-Mn-PostV-Giv:C1:DO:bareN-M-Ref=fish
%mor: ADV|potom N|lisa&ANI:FEM-SG:NOM@:v2--4
V|poprosit'&PFV:TRANS-PAST:SG:FEM N|ryba&ANI:FEM-SG:ACC@:v2--4
*017: 0ona pobezhala s ryboj, a ptica za nej [:lisoj].
%cod: word|T1-0PRO-S-Mn-Vfin-Giv:C1:S:bareN-M-Ref=fox
s ryboj|T2-bareN-PO-INSTR-Mn-PostV-Giv:C1:DO:bareN-M-Ref=fish
ptica|T1-bareN-S-NOM-Mn-0V-Acc:C3:S:bareN-RI-Ref=bird1
za nej|T2-PRO-PO-INSTR-Mn-0V-Giv:C1:S:0PRO-M-Ref=fox
%mor: 0PRO|on&-SG:FEM:NOM@:pers-v1-as-li V|pobezhat'&PFV:INTRANS-PAST:SG:FEM
PREP|s N|ryba&ANI:FEM-SG:INSTR@:v1-pn CONJ|a N|ptica&ANI:FEM-SG:NOM@:v4--4
PREP|za PRO|on&-SG:FEM:INSTR@:pers-v2-0pro-ppm-li
*017: vot i vse.
%mor: PTL|vot PTL|i PRO|ves'&-SG:NEUT:NOM
@G:` 6
*017: potom ryba utashchila ptichku # u lisichki rybu.
%cod: ryba|T1-bareN-S-NOM-Mn-PreV-Giv:C1:S:bareN-M-Ref=bird1
rybu|T2-bareN-DO-ACC-Mn-PostV-Acc:C2:PO:bareN-RI-Ref=fish
u lisichki|T3-bareN-PO-GEN-Mn-PostV-Giv:C1:PO:PRO-M-Ref=fox
%mor: ADV|potom N|ryba&ANI:FEM-SG:NOM@:v3--5
V|utashchit'&PFV:TRANS-PAST:SG:FEM N|ptichka&ANI:FEM-SG:ACC@:v2--5
PREP|u N|lisichka&ANI:FEM-SG:GEN@:v2--5-pro-pn
N|ryba&ANI:FEM-SG:ACC@:v0
%com: ogovorilsja, naverno, ptica utashchila rybu.
*017: vot i vse.
%mor: PTL|vot PTL|i PRO|ves'&-SG:NEUT:NOM
@End

German (*053, 5;10, bilingual)

@Begin
@Languages: de
@Participants: 053 Target Child, EX1 Experimenter 1
@Filename: bd5_053fox.cha
@Linguistic background: German and Russian, bilingual
@Sex of 053: male
@Date of birth of 053: 17-APR-2002
@Date of record: 20-FEB-2008
@Age of 053: 5;10.3
@Transcriber: TR1
@Comments: several interruptions
@Bg: Fox Story (Beginn Fox Story)
*EX1: Und jetzt, versuch(e) mir doch mal diese Geschichte zu erzaehl(e)n.
@G: 1.
*053: Hm@i, ein Vogel hat ein Knochenfisch [= Graete] geklaut.
%cod: ein Vogel|T1-indefNP-S-NOM-Mn-PreV:PF-New-FM-Ref=bird1
ein Knochenfisch|T2-indefNP-DO-NOM-Mn-PostV:MF-New-FM-Ref=fish
*EX1: Ja, sehr schoen!
@G: 2.
*053: Und jetzt geht er noch wieder zu den [*] [: dem] Baum [].
%cod: er|T-PRO-S-NOM-Mn-PostV:MF-Giv:C1:S:indefNP-M-Ref=bird1
*EX1: Genau!
*EX1: Naechstes Bild!
*EX1: Ja, leg(e) (e)s einfach zur Seite dann.
*053: Und hier ist der hier oben.
%cod: der|T-DEM-S-NOM-Mn-PostV:MF-Giv:C1:S:PRO-M-Ref=bird1
*053: Und hier will der Fuchs den Knochenfisch [?] klau(e)n.
%cod: der Fuchs|T1-defNP-S-NOM-Mn-PostV:MF-New-FM-ref=fox
den Knochenfisch|T2-defNP-DO-ACC-Mn-PostV:MF-Acc:C3:DO:indefNP-RI-Ref=fish
*EX1: Ja!
@G: 3.
*053: Hier wollte er ein 0word versuchen zu klau(e)n.
%cod: er|T1-PRO-S-NOM-Mn-PostV:MF-Giv:C1:S:DEM-M-Ref=bird1
ein|T2-indefPRO-DO-ACC-Mn-PostV:MF-Acc:C2:DO:defNP-RI-Ref=fish
*053: Aber hier ist er weggeflog(e)n.
%cod: er|T-PRO-S-NOM-Mn-PostV:MF-Giv:C1:S:PRO-M-Ref=bird1
*EX1: Genau, sehr schoen!
@G: 4.
*053: Und hier ist das aus Verseh(e)n runtergefallen.
%cod: das|T-DEM-S-NOM-Mn-PostV:MF-Acc:C2:DO:indefPRO-RI-Ref=fish
*EX1: Ja!
@G: 5.
*053: Und hier ist der weggerannt.
%cod: der|T-DEM-S-NOM-Mn-PostV:MF-Acc:C3:S:defNP-RI-Ref=fox
*EX1: Genau!
@G: 6.
*053: Und dann hat [*] [: ist] er geflogen [].
%cod: er|T-PRO-S-NOM-Mn-PostV:MF-Acc:C3:S:PRO-RI-Ref=bird1
*053: Und hat (e)s [?] 0word-r wieder <den Fisch> [?] geschnappt.
%cod: word|T1-0PRO-S-Mn-Vfin-Acc:C3:S:PRO-RI-Ref=bird1
es|T2-PRO-DO-ACC-Mn-PostV:MF-Acc:C2:S:DEM-RI-Ref=fish
den Fisch|TD-defNP-DO2-ACC-Mn-Vfin:RD-Acc:C2:S:DEM-RI-Ref=fish
*EX1: Da hat er s(i)e am Ende wieder gehabt, die Fischgraete, oder?
*053: Hm@ia.
@Eg: Fox Story (Ende Fox Story)
@End

German **(*115, 5;4, monolingual)**

@Begin
@Languages: de
@Participants: 115 Target_Child, EX1 Investigator
@Filename: md5_115_cat.cha
@Linguistic Background: German monolingual
@Date of Birth of 115: 12-JAN-2001
@Date of record: 22-MAY-2006
@Age of 115: 5;04.08
@Sex of 115: male
@Transcriber: TR4
@Location: Kita
@G: 1
*115: der vogel tut auf der babyvoegel aufpassen [^c].
%cod: der vogel|T1-defNP-S-NOM-Mn-PreV:PF-New-FM-Ref=m-bird
auf der babyvoegel|T2-defNP-PO-DAT-Mn-PostV:MF-New-FM-Ref=b-birds
%com: zeigt auf das nest.
@G: 2
*EX1: und was passiert dann [^c]?
*115: dann [/] dann fliegt der vogel weg und will wuermer holen [^c] und
die katze will hoch und die [= kueken] holen [^c].
%cod: der vogel|T-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:defNP-M-Ref=m-bird
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:defNP-M-Ref=m-bird
wuermer|T2-indefNP-DO-ACC-Mn-PostV:MF-New-FM-Ref=worm
die katze|T-defNP-S-NOM-Mn-PreV:PF-New-FM-Ref=cat
word|T1-0PRO-S-Mn-0Vfin-Giv:C0:S:defNP-M-Ref=cat
die|T2-DEM-DO-ACC-Mn-Vfin-Acc:C3:PO:defNP-RI-Ref=b-birds
%com: zeigt auf vogel, dann katze, dann nest.
@G: 3
*EX1: was passiert dann [^c]?
*115: dann ist der [= vogel] weggeflogen [^c].
%cod: der|T-DEM-S-NOM-Mn-PostV:MF-Acc:C2:S:0PRO-RI-Ref=m-bird
%com: zeigt auf das nest.
*115: dann wartet sie [= katze] [^c].
%cod: sie|T-PRO-S-NOM-Mn-PostV:MF-Acc:C2:S:0PRO-RI-Ref=cat
%com: zeigt auf die katze.
@G: 4
*115: da klettert die katze hoch [^c].
%cod: die katze|T-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:PRO-M-Ref=cat
%com: zeigt auf die katze.
*EX1: schau mal hier [^c].
%com: zeigt auf den hund.
*115: und da kommt der hund [^c].
%cod: der hund|T-defNP-S-NOM-Mn-PostV:MF-New-FM-Ref=dog
@G: 5
*EX1: und dann?
*115: dann tut der hund die katze runter ziehen [^c].
%cod: der hund|T1-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:defNP-M-Ref=dog
die katze|T2-defNP-DO-ACC-Mn-PostV:MF-Acc:C2:S:defNP-RI-Ref=cat
%com: zeigt auf hund und katze.
*EX1: und hier?
%com: zeigt auf den vogel.
*115: da kommt der vogel wieder [^c].
%cod: der vogel|T-defNP-S-NOM-Mn-PostV:MF-Acc:C3:S:DEM-RI-Ref=m-bird
@G: 6
*EX1: und zum schluss?

*115: da [/] da ist der vogel schon da und fuettert die
[= kueken], der vogel die [^c] und dann tut der hund die katze
wegjagen [^c].
%cod: der vogel|T-defNP-S-NOM-Mn-PostV:MF-Giv:C1:S:defNP-M-Ref=m-bird
word|T1-0PRO-S-Mn-Vfin-Giv:C0:S:defNP-M-Ref=m-bird
die|T2-DEM-DO-ACC-Mn-PostV:MF-Acc:C3:DO:DEM-RI-Ref=b-birds
der hund|T1-defNP-S-NOM-Mn-PostV:MF-Acc:C3:S:defNP-RI-Ref=dog
die katze|T2-defNP-DO-ACC-Mn-PostV:MF-Acc:C3:DO:defNP-RI-Ref=cat
@End

Appendix D. Samples with distribution of stories per language and age group

D.1 Russian monolingual sample

Number	Child ID	Gender (f=female; m=male)	Sample/ Language (m=monoling; b=biling; r=Russian; d=German)	Story	Age group	Age at the time of the first test	Age in months	LOE (length of exposure) to L2 German	LOE (length of exposure) to L2 German in months
1	6	m	mr	FOX	4	4;10	58	4;10	58
2	17	m	mr	FOX	4	4;01	49	4;01	49
3	32	f	mr	CAT	4	4;07	55	4;07	55
4	33	m	mr	FOX	4	4;08	56	4;08	56
5	81	f	mr	CAT	4	4;11	59	4;11	59
6	83	f	mr	FOX	4	4;10	58	4;10	58
7	86	m	mr	CAT	4	4;01	49	4;01	49
8	87	f	mr	CAT	4	4;01	49	4;01	49
9	89	m	mr	FOX	4	4;01	49	4;01	49
10	131	m	mr	CAT	4	4;10	58	4;10	58
11	169	f	mr	CAT	4	4;02	50	4;02	50
12	176	f	mr	FOX	4	4;01	49	4;01	49
mean values of the group						**4;05**	**53**	**4;05**	**53**
1	30	m	mr	CAT	5	5;02	62	5;02	62
2	49	f	mr	CAT	5	5;09	69	5;09	69
3	50	f	mr	CAT	5	5;05	65	5;05	65
4	51	f	mr	CAT	5	5;08	68	5;08	68
5	65	m	mr	CAT	5	5;07	67	5;07	67
6	67	f	mr	FOX	5	5;07	67	5;07	67
7	71	m	mr	CAT	5	5;04	64	5;04	64
8	92	f	mr	FOX	5	5;05	65	5;05	65
9	98	f	mr	FOX	5	5;06	66	5;06	66
10	109	m	mr	FOX	5	5;07	67	5;07	67
11	129	m	mr	FOX	5	5;02	62	5;02	62
12	133	m	mr	FOX	5	5;02	62	5;02	62
mean values of the group						**5;05**	**65**	**5;05**	**65**
1	48	f	mr	FOX	6	6;00	72	6;00	72
2	59new	f	mr	CAT	6	6;02	74	6;02	74
3	64new	m	mr	FOX	6	6;05	77	6;05	77
4	65new	m	mr	FOX	6	6;02	74	6;02	74
5	66new	m	mr	CAT	6	6;03	75	6;03	75
6	67new	m	mr	CAT	6	6;02	74	6;02	74
7	68	m	mr	CAT	6	6;01	73	6;01	73
8	68new	f	mr	FOX	6	6;01	73	6;01	73
9	69	m	mr	CAT	6	6;01	73	6;01	73
10	69new	m	mr	FOX	6	6;03	75	6;03	75
11	70new	m	mr	FOX	6	6;03	75	6;03	75
mean values of the group						**6;02**	**74**	**6;02**	**74**

D.2 German monolingual sample

Number	Child ID	Gender (f=female; m=male)	Sample/ Language (m=monoling; b=biling; r=Russian; d=German)	Story	Age group	Age at the time of the first test	Age in months	LOE (length of exposure) to L2 German	LOE (length of exposure) to L2 German in months
1	21	f	md	CAT	4	4;06	54	4;06	54
2	22	m	md	CAT	4	4;10	58	4;10	58
3	26	m	md	CAT	4	4;08	56	4;08	56
4	48	f	md	FOX	4	4;11	59	4;11	59
5	52	f	md	FOX	4	4;09	57	4;09	57
6	64	f	md	CAT	4	4;02	50	4;02	50
7	65	m	md	CAT	4	4;01	49	4;01	49
8	93	f	md	FOX	4	4;07	55	4;07	55
9	110	f	md	CAT	4	4;02	50	4;02	50
10	119	m	md	FOX	4	4;01	49	4;01	49
11	125	m	md	FOX	4	4;10	58	4;10	58
12	147	m	md	FOX	4	4;04	52	4;04	52
mean values of the group						**4;06**	**54**	**4;06**	**54**
1	35	f	md	CAT	5	5;05	65	5;05	65
2	115	m	md	CAT	5	5;04	64	5;04	64
3	127	m	md	FOX	5	5;03	63	5;03	63
4	159	m	md	CAT	5	5;05	65	5;05	65
5	160	f	md	FOX	5	5;05	65	5;05	65
6	161new	m	md	CAT	5	5;09	69	5;09	69
7	166new	f	md	FOX	5	5;10	70	5;10	70
8	167new	m	md	FOX	5	5;09	69	5;09	69
9	171	f	md	CAT	5	5;06	66	5;06	66
10	186	f	md	FOX	5	5;03	63	5;03	63
11	195	m	md	FOX	5	5;05	65	5;05	65
mean values of the group						**5;06**	**66**	**5;06**	**66**
1	34	m	md	CAT	6	6;03	75	6;03	75
2	63	f	md	FOX	6	6;02	74	6;02	74
3	158new	f	md	CAT	6	6;02	74	6;02	74
4	159new	m	md	CAT	6	6;01	73	6;01	73
5	163new	f	md	CAT	6	6;01	73	6;01	73
6	164new	m	md	FOX	6	6;02	74	6;02	74
7	168new	f	md	FOX	6	6;00	72	6;00	72
8	170new	m	md	CAT	6	6;04	76	6;04	76
9	171new	m	md	FOX	6	6;05	77	6;05	77
10	173new	f	md	FOX	6	6;07	79	6;07	79
mean values of the group						**6;03**	**75**	**6;03**	**75**

D.3 Russian-German bilingual sample (stories in Russian)

Number	Child ID	Gender (f=female; m=male)	Sample/ Language (m=monoling; b=biling; r=Russian; d=German)	Story	Age group	Age at the time of the first test	Age in months	LOE (length of exposure) to L2 German	LOE (length of exposure) to L2 German in months
1	11	f	br	CAT	4	4;02	50	1;07	19
2	13	m	br	CAT	4	4;10	58	3;07	43
3	17	m	br	FOX	4	4;06	54	2;10	34
4	22	f	br	FOX	4	4;08	56	1;05	17
5	37	f	br	FOX	4	4;05	53	1;05	17
6	41	f	br	FOX	4	4;10	58	2;10	34
7	58	m	br	CAT	4	4;05	53	1;05	17
8	59	f	br	CAT	4	4;01	49	1;05	17
9	63	f	br	CAT	4	4;04	52	2;09	33
10	64	m	br	CAT	4	4;02	50	1;08	20
11	66	f	br	FOX	4	4;09	57	2;09	33
12	67	f	br	FOX	4	4;11	59	1;09	21
13	70	f	br	CAT	4	4;06	54	2;06	30
14	72	f	br	CAT	4	4;05	53	2;06	30
15	73	f	br	CAT	4	4;09	57	1;09	21
16	75	m	br	CAT	4	4;10	58	1;08	20
17	80	m	br	CAT	4	4;07	55	2;06	30
18	89	f	br	FOX	4	4;07	55	1;07	19
19	90	m	br	FOX	4	4;03	51	1;01	13
20	91	f	br	CAT	4	4;01	49	1;11	23
mean values of the group						**4;06**	**54**	**2;1**	**25**
1	3	f	br	FOX	5	5;01	61	2;09	33
2	4	m	br	FOX	5	5;07	67	2;07	31
3	5	f	br	FOX	5	5;01	61	2;01	25
4	16	f	br	FOX	5	5;06	66	4;01	49
5	18	m	br	FOX	5	5;08	68	3;03	39
6	23	f	br	FOX	5	5;06	66	3;06	42
7	24	m	br	FOX	5	5;09	69	3;04	40
8	38	m	br	CAT	5	5;05	65	2;05	29
9	39	m	br	CAT	5	5;06	66	2;04	28
10	40	m	br	CAT	5	5;08	68	2;05	29
11	46	m	br	FOX	5	5;06	66	2;06	30
12	50	f	br	CAT	5	5;08	68	3;06	42
13	51	f	br	FOX	5	5;10	70	3;09	45
14	53	m	br	CAT	5	5;10	70	3;06	42
15	54	f	br	CAT	5	5;08	68	3;08	44
16	71	f	br	CAT	5	5;03	63	2;08	32
17	86	m	br	FOX	5	5;02	62	2;11	35
18	101	m	br	CAT	5	5;10	70	4;07	55
19	102	m	br	CAT	5	5;10	70	3;10	46
20	103	m	br	CAT	5	5;09	69	4;03	51
mean values of the group						**5;06**	**67**	**3;02**	**38**
1	28	f	br	CAT	6	6;06	78	3;06	42
2	29	f	br	CAT	6	6;11	83	4;08	56
3	32	f	br	FOX	6	6;09	81	4;09	57
4	33	m	br	FOX	6	6;05	77	4;11	59
5	34	m	br	CAT	6	6;11	83	5;00	60
6	35	m	br	CAT	6	6;05	77	5;05	65
7	36	f	br	FOX	6	6;07	79	3;04	40
8	43	m	br	FOX	6	6;04	76	4;04	52
9	44	m	br	FOX	6	6;04	76	5;03	63
10	47	f	br	FOX	6	6;10	82	4;05	53
11	52	f	br	CAT	6	6;00	72	3;05	41
12	57	m	br	CAT	6	6;00	72	3;05	41
13	77	m	br	CAT	6	6;08	80	4;08	56
14	78	f	br	CAT	6	6;10	82	4;09	57
15	83	f	br	FOX	6	6;11	83	3;11	47
16	97	f	br	CAT	6	6;03	75	4;03	51
17	98	f	br	FOX	6	6;04	76	4;08	56
18	99	f	br	FOX	6	6;02	74	4;01	49
19	112	m	br	FOX	6	6;10	82	4;10	58
20	113	m	br	FOX	6	6;02	74	4;02	50
mean values of the group						**6;06**	**78**	**4;05**	**53**

D.4 Russian-German bilingual sample (stories in German)

Number	Child ID	Gender (f=female; m=male)	Sample/ Language (m=monoling; b=biling; r=Russian; d=German)	Story	Age group	Age at the time of the first test	Age in months	LOE (length of exposure) to L2 German	LOE (length of exposure) to L2 German in months
1	11	f	bd	FOX	4	4;02	50	1;07	19
2	13	m	bd	FOX	4	4;10	58	3;07	43
3	17	m	bd	CAT	4	4;06	54	2;10	34
4	22	f	bd	CAT	4	4;08	56	1;05	17
5	37	f	bd	CAT	4	4;05	53	1;05	17
6	41	f	bd	CAT	4	4;10	58	2;10	34
7	58	m	bd	FOX	4	4;05	53	1;05	17
8	59	f	bd	FOX	4	4;01	49	1;05	17
9	63	f	bd	FOX	4	4;04	52	2;09	33
10	64	m	bd	FOX	4	4;02	50	1;08	20
11	66	f	bd	CAT	4	4;09	57	2;09	33
12	67	f	bd	CAT	4	4;11	59	1;09	21
13	70	f	bd	FOX	4	4;06	54	2;06	30
14	72	f	bd	FOX	4	4;05	53	2;06	30
15	73	f	bd	FOX	4	4;09	57	1;09	21
16	75	m	bd	FOX	4	4;10	58	1;08	20
17	80	m	bd	FOX	4	4;07	55	2;06	30
18	89	f	bd	CAT	4	4;07	55	1;07	19
19	90	m	bd	CAT	4	4;03	51	1;01	13
20	91	f	bd	FOX	4	4;01	49	1;11	23
mean values of the group						**4;06**	**54**	**2;1**	**25**
1	3	f	bd	CAT	5	5;01	61	2;09	33
2	4	m	bd	CAT	5	5;07	67	2;07	31
3	5	f	bd	CAT	5	5;01	61	2;01	25
4	16	f	bd	CAT	5	5;06	66	4;01	49
5	18	m	bd	CAT	5	5;08	68	3;03	39
6	23	f	bd	CAT	5	5;06	66	3;06	42
7	24	m	bd	CAT	5	5;09	69	3;04	40
8	38	m	bd	FOX	5	5;05	65	2;05	29
9	39	m	bd	FOX	5	5;06	66	2;04	28
10	40	m	bd	FOX	5	5;08	68	2;05	29
11	46	m	bd	CAT	5	5;06	66	2;06	30
12	50	f	bd	FOX	5	5;08	68	3;06	42
13	51	f	bd	CAT	5	5;10	70	3;09	45
14	53	m	bd	FOX	5	5;10	70	3;06	42
15	54	f	bd	FOX	5	5;08	68	3;08	44
16	71	f	bd	FOX	5	5;03	63	2;08	32
17	86	m	bd	CAT	5	5;02	62	2;11	35
18	101	m	bd	FOX	5	5;10	70	4;07	55
19	102	m	bd	FOX	5	5;10	70	3;10	46
20	103	m	bd	FOX	5	5;09	69	4;03	51
mean values of the group						**5;06**	**67**	**3;02**	**38**
1	28	f	bd	FOX	6	6;06	78	3;06	42
2	29	f	bd	FOX	6	6;11	83	4;08	56
3	32	f	bd	CAT	6	6;09	81	4;09	57
4	33	m	bd	CAT	6	6;05	77	4;11	59
5	34	m	bd	FOX	6	6;11	83	5;00	60
6	35	m	bd	FOX	6	6;05	77	5;05	65
7	36	f	bd	CAT	6	6;07	79	3;04	40
8	43	m	bd	CAT	6	6;04	76	4;04	52
9	44	m	bd	CAT	6	6;04	76	5;03	63
10	47	f	bd	CAT	6	6;10	82	4;05	53
11	52	f	bd	FOX	6	6;00	72	3;05	41
12	57	m	bd	FOX	6	6;00	72	3;05	41
13	77	m	bd	FOX	6	6;08	80	4;08	56
14	78	f	bd	FOX	6	6;10	82	4;09	57
15	83	f	bd	CAT	6	6;11	83	3;11	47
16	97	f	bd	FOX	6	6;03	75	4;03	51
17	98	f	bd	CAT	6	6;04	76	4;08	56
18	99	f	bd	CAT	6	6;02	74	4;01	49
19	112	m	bd	CAT	6	6;10	82	4;10	58
20	113	m	bd	CAT	6	6;02	74	4;02	50
mean values of the group						**6;06**	**78**	**4;05**	**53**

Appendix E. Raw data for statistical analysis

E.1 Grammatical use of referential expressions

E.1.1 Russian monolingual sample

Child ID	Sample	Age group	bareN_total	defNP_total	indefNP_total	demNP_total	possNP_total	PRO_total	0PRO_total	indefPRO_total	DEM_total	all_ref_exp_total
6	mr	4	17	0	0	0	0	4	2	0	1	24
17	mr	4	23	0	0	0	0	1	1	0	0	25
32	mr	4	13	0	0	0	0	3	0	0	0	16
33	mr	4	11	0	0	0	0	9	4	0	0	24
81	mr	4	14	0	0	1	0	3	1	0	0	19
83	mr	4	16	0	0	0	0	1	3	0	0	20
86	mr	4	10	0	0	0	0	2	0	0	2	14
87	mr	4	9	0	0	0	3	3	4	0	0	19
89	mr	4	11	0	0	0	0	1	0	0	0	12
131	mr	4	15	0	0	0	0	3	1	0	0	19
169	mr	4	20	0	0	0	0	1	1	0	0	22
176	mr	4	9	0	0	0	0	6	2	0	0	17
30	mr	5	16	0	0	0	0	13	3	0	0	32
49	mr	5	17	0	0	0	1	4	3	0	0	25
50	mr	5	6	0	0	0	0	9	5	0	0	20
51	mr	5	7	0	0	0	1	10	4	0	4	26
65	mr	5	15	0	0	0	2	9	9	0	0	35
67	mr	5	14	0	0	0	0	9	8	0	0	31
71	mr	5	14	0	0	0	1	5	2	0	0	22
92	mr	5	22	0	0	0	0	6	8	0	0	36
98	mr	5	9	0	0	0	0	10	13	0	0	32
109	mr	5	13	0	0	0	0	2	1	0	0	16
129	mr	5	16	0	0	0	1	1	2	0	1	21
133	mr	5	14	0	0	0	0	0	2	0	0	16
48	mr	6	16	0	0	0	0	6	7	0	0	29
59new	mr	6	10	0	0	0	0	3	2	0	0	15
64new	mr	6	17	0	0	0	0	15	14	0	2	48
65new	mr	6	15	0	0	0	0	1	3	0	0	19
66new	mr	6	15	0	0	0	0	5	8	0	1	29
67new	mr	6	19	0	0	1	0	12	9	0	0	41
68	mr	6	20	0	0	0	1	3	3	0	0	27
68new	mr	6	15	0	0	1	1	10	11	0	0	38
69	mr	6	16	0	0	0	1	6	15	0	0	38
69new	mr	6	15	0	0	0	0	9	5	0	0	29
70new	mr	6	14	0	0	1	0	3	8	0	0	26

E.1.2 German monolingual sample

Child ID	Sample	Age group	bareN_total	defNP_total	indefNP_total	demNP_total	possNP_total	PRO_total	0PRO_total	indefPRO_total	DEM_total	all_ref_exp_total
21	md	4	0	13	1	0	1	2	2	0	2	21
22	md	4	1	13	2	0	1	0	0	0	1	18
26	md	4	0	9	5	0	0	0	0	0	1	15
48	md	4	0	8	1	0	0	3	1	1	2	16
52	md	4	0	6	0	0	0	5	0	0	5	16
64	md	4	0	14	2	0	0	0	0	0	3	19
65	md	4	0	12	1	0	0	0	2	0	4	19
93	md	4	0	23	1	0	1	9	4	0	0	38
110	md	4	0	9	0	0	0	0	1	0	3	13
119	md	4	5	5	2	0	0	0	0	0	9	21
125	md	4	0	16	2	0	0	2	2	0	0	22
147	md	4	0	15	0	0	0	0	0	0	0	15
35	md	5	0	13	0	0	0	1	0	1	3	18
115	md	5	0	12	1	0	0	1	3	0	3	20
127	md	5	1	8	0	0	0	2	2	0	3	16
159	md	5	0	11	1	0	0	0	2	0	2	16
160	md	5	0	14	0	0	0	1	0	0	0	15
161new	md	5	1	9	1	0	0	0	4	0	12	27
166new	md	5	0	13	1	0	0	5	0	0	4	23
167new	md	5	0	10	0	0	0	7	0	0	3	20
171	md	5	2	14	0	0	0	0	2	0	1	19
186	md	5	0	9	0	0	0	9	0	0	7	25
195	md	5	0	8	1	0	0	7	0	0	3	19
34	md	6	0	8	2	0	0	2	1	0	3	16
63	md	6	0	6	2	0	0	1	1	0	5	15
158new	md	6	0	14	3	0	0	3	1	0	3	24
159new	md	6	0	11	2	0	0	1	1	0	1	16
163new	md	6	0	16	2	0	0	0	1	1	3	23
164new	md	6	0	9	0	0	0	3	0	0	4	16
168new	md	6	0	5	1	0	0	14	5	0	9	34
170new	md	6	0	17	2	0	0	0	0	0	5	24
171new	md	6	0	15	0	0	0	2	1	0	0	18
173new	md	6	0	13	3	0	0	1	1	1	1	20

E.1.3 Russian-German bilingual sample (data in Russian)

Child ID	Sample	Age group	bareN_total	defNP_total	indefNP_total	demNP_total	possNP_total	PRO_total	0PRO_total	indefPRO_total	DEM_total	all_ref_exp_total
11	br	4	13	0	0	3	0	7	3	0	0	26
13	br	4	9	0	0	1	0	3	9	0	0	22
17	br	4	6	0	0	3	0	6	6	0	0	21
22	br	4	5	0	0	8	0	16	2	0	1	32
37	br	4	15	0	0	0	0	5	0	0	0	20
41	br	4	8	0	0	5	0	10	6	0	0	29
58	br	4	15	0	0	0	0	11	5	1	1	33
59	br	4	16	0	0	0	1	17	2	0	1	37
63	br	4	8	0	0	1	0	14	5	0	0	28
64	br	4	7	0	0	0	0	6	3	0	0	16
66	br	4	9	0	0	1	0	4	8	0	0	22
67	br	4	4	0	0	0	0	6	3	1	0	14
70	br	4	10	0	4	1	0	0	0	0	0	15
72	br	4	13	0	0	0	0	10	2	0	0	25
73	br	4	16	0	0	0	1	10	3	0	0	30
75	br	4	7	0	0	0	0	6	5	0	0	18
80	br	4	14	0	0	0	0	1	0	0	0	15
89	br	4	5	0	0	0	0	7	2	0	1	15
90	br	4	12	0	0	0	0	0	0	0	0	12
91	br	4	2	0	0	1	1	14	2	0	0	20
3	br	5	12	1	0	4	0	4	3	0	0	24
4	br	5	21	0	0	0	0	5	2	0	0	28
5	br	5	10	0	0	0	0	9	7	0	0	26
16	br	5	6	0	0	6	0	7	3	0	0	22
18	br	5	12	0	3	0	0	8	5	0	1	29
23	br	5	12	0	0	3	1	6	1	0	0	23
24	br	5	14	0	0	0	0	4	5	5	0	28
38	br	5	4	0	0	0	0	9	1	0	0	14
39	br	5	21	0	2	0	0	1	6	0	0	30
40	br	5	15	0	0	0	0	0	0	0	0	15
46	br	5	11	0	0	0	0	8	1	0	1	21
50	br	5	11	0	0	0	0	3	1	0	0	15
51	br	5	1	0	0	0	0	11	2	0	3	17
53	br	5	9	0	0	0	0	4	4	0	0	17
54	br	5	9	0	0	1	2	25	3	2	1	43
71	br	5	15	0	1	0	0	7	1	0	0	24
86	br	5	5	0	0	13	0	2	3	0	1	24
101	br	5	18	0	0	1	0	4	4	0	0	27
102	br	5	14	0	0	0	0	3	2	0	0	19
103	br	5	19	0	0	1	0	4	2	0	0	26
28	br	6	21	0	0	0	0	9	9	0	0	39
29	br	6	13	0	0	0	0	4	5	0	0	22
32	br	6	13	0	0	8	2	1	2	0	0	26
33	br	6	15	0	0	0	0	5	7	0	0	27
34	br	6	10	0	0	1	0	4	0	0	0	15
35	br	6	16	0	0	0	1	0	6	0	0	23
36	br	6	21	0	0	0	0	5	4	0	0	30
43	br	6	9	0	0	1	0	2	6	0	0	18
44	br	6	10	0	0	1	0	12	0	0	0	23
47	br	6	8	0	0	0	4	12	9	0	0	33
52	br	6	15	0	0	3	0	6	3	1	0	28
57	br	6	11	0	0	1	0	14	2	0	0	28
77	br	6	15	0	0	0	0	2	2	0	0	19
78	br	6	12	1	0	4	2	3	3	0	0	25
83	br	6	10	0	0	0	0	8	6	0	1	25
97	br	6	15	0	0	2	0	4	1	0	0	22
98	br	6	10	0	0	0	0	5	4	0	0	19
99	br	6	8	0	0	0	0	10	8	0	0	26
112	br	6	14	0	0	0	0	2	13	0	0	29
113	br	6	14	0	0	0	0	4	10	0	1	29

E.1.4 Russian-German bilingual sample (data in German)

Child ID	Sample	Age group	bareN_total	defNP_total	indefNP_total	demNP_total	possNP_total	PRO_total	0PRO_total	indefPRO_total	DEM_total	all_ref_exp_total
11	bd	4	0	4	0	0	0	0	1	0	17	22
13	bd	4	0	1	1	0	0	11	1	0	1	15
17	bd	4	2	7	1	0	0	4	2	0	3	19
22	bd	4	0	16	0	0	1	2	2	0	5	26
37	bd	4	3	10	4	0	0	0	2	0	4	23
41	bd	4	1	4	1	0	0	3	3	0	4	16
58	bd	4	0	5	1	0	0	7	1	0	4	18
59	bd	4	5	2	0	0	0	6	2	1	23	39
63	bd	4	0	15	0	0	0	8	1	0	0	24
64	bd	4	1	3	1	0	0	0	1	0	8	14
66	bd	4	0	11	0	0	0	1	1	0	4	17
67	bd	4	0	1	1	0	0	7	1	0	3	13
70	bd	4	1	12	1	0	0	0	2	0	0	16
72	bd	4	3	9	1	0	0	8	4	0	1	26
73	bd	4	1	2	0	0	0	1	5	0	18	27
75	bd	4	0	6	2	0	0	14	8	0	1	31
80	bd	4	0	18	1	0	0	1	0	0	1	21
89	bd	4	1	12	2	0	0	1	2	0	1	19
90	bd	4	0	3	3	0	0	1	0	0	8	15
91	bd	4	0	3	2	0	0	8	2	0	18	33
3	bd	5	0	18	2	0	0	1	3	0	3	27
4	bd	5	0	8	3	0	0	5	0	0	0	16
5	bd	5	0	9	0	0	0	5	1	0	4	19
16	bd	5	0	10	0	0	1	4	1	0	2	18
18	bd	5	0	8	4	0	1	3	2	0	2	20
23	bd	5	0	14	1	0	1	3	0	0	2	21
24	bd	5	0	5	3	7	2	5	2	1	1	26
38	bd	5	0	2	1	0	0	5	2	0	4	14
39	bd	5	0	6	4	0	0	8	2	0	2	22
40	bd	5	0	10	3	0	0	2	13	0	3	31
46	bd	5	1	10	2	0	0	5	1	1	0	20
50	bd	5	0	2	1	0	0	5	0	0	4	12
51	bd	5	0	5	0	0	1	6	2	0	0	14
53	bd	5	0	3	2	0	0	5	1	1	3	15
54	bd	5	1	14	1	0	0	11	1	0	4	32
71	bd	5	0	14	2	0	0	9	3	0	1	29
86	bd	5	0	10	1	0	0	0	0	0	3	14
101	bd	5	1	9	3	0	0	9	5	0	6	33
102	bd	5	0	13	3	0	0	7	5	0	2	30
103	bd	5	1	9	0	0	0	3	7	0	2	22
28	bd	6	0	14	3	0	0	6	4	0	5	32
29	bd	6	0	11	3	0	0	4	2	0	7	27
32	bd	6	1	15	2	0	4	3	0	0	2	27
33	bd	6	3	15	1	0	1	0	3	0	1	24
34	bd	6	0	22	2	0	0	3	4	0	2	33
35	bd	6	0	22	6	0	1	4	1	0	0	34
36	bd	6	0	13	6	0	0	2	1	1	2	25
43	bd	6	0	7	2	0	0	0	0	0	3	12
44	bd	6	0	9	0	0	0	3	0	1	2	15
47	bd	6	1	9	2	0	0	3	2	0	1	18
52	bd	6	2	6	1	0	1	8	4	0	1	23
57	bd	6	1	4	3	0	0	6	2	0	8	24
77	bd	6	1	7	0	0	0	2	5	0	3	18
78	bd	6	0	17	1	0	0	8	2	0	1	29
83	bd	6	0	19	1	0	1	1	1	2	1	26
97	bd	6	0	14	2	0	0	2	1	0	2	21
98	bd	6	1	9	2	0	2	7	0	1	3	25
99	bd	6	1	10	3	0	0	6	4	0	0	24
112	bd	6	0	13	3	0	0	0	1	0	0	17
113	bd	6	0	9	3	0	0	0	0	0	0	12

E.2 Pragmatic use of referential expressions

E.2.1 Distribution of referential expressions with information status NEW

E.2.1.1 Russian monolingual sample

Child ID	Sample	Age group	all_bareN_new	preVbareN_new	postVbareN_ne	0VbareN_new	VfinbareN_new	demNP_new	PRO_new	0PRO_new	all_ref_exp_new
6	mr	4	3	1	1	1	0	0	0	0	3
17	mr	4	3	3	0	0	0	0	0	0	3
32	mr	4	4	2	2	0	0	0	0	0	4
33	mr	4	3	2	1	0	0	0	0	0	3
81	mr	4	4	2	1	0	1	0	0	0	4
83	mr	4	3	2	1	0	0	0	0	0	3
86	mr	4	3	1	0	2	0	0	0	0	3
87	mr	4	4	1	2	1	0	0	0	0	4
89	mr	4	3	0	1	2	0	0	0	0	3
131	mr	4	5	1	1	3	0	0	0	0	5
169	mr	4	6	0	3	3	0	0	0	0	6
176	mr	4	3	2	1	0	0	0	0	0	3
30	mr	5	5	3	2	0	0	0	0	0	5
49	mr	5	5	1	4	0	0	0	0	0	5
50	mr	5	3	3	0	0	0	0	1	0	4
51	mr	5	3	1	1	1	0	0	1	0	4
65	mr	5	4	1	3	0	0	0	0	0	4
67	mr	5	3	1	2	0	0	0	0	0	3
71	mr	5	5	0	5	0	0	0	0	0	5
92	mr	5	3	2	1	0	0	0	0	0	3
98	mr	5	4	2	2	0	0	0	0	0	4
109	mr	5	3	1	2	0	0	0	0	0	3
129	mr	5	3	2	1	0	0	0	0	0	3
133	mr	5	3	2	1	0	0	0	0	0	3
48	mr	6	3	0	3	0	0	0	0	0	3
59new	mr	6	5	3	2	0	0	0	0	0	5
64new	mr	6	3	2	1	0	0	0	0	0	3
65new	mr	6	3	1	2	0	0	0	0	0	3
66new	mr	6	3	2	0	0	1	0	1	0	4
67new	mr	6	4	2	2	0	0	1	0	0	5
68	mr	6	5	3	2	0	0	0	0	0	5
68new	mr	6	4	3	1	0	0	0	0	0	4
69	mr	6	4	3	1	0	0	0	0	0	4
69new	mr	6	3	0	3	0	0	0	0	0	3
70new	mr	6	3	1	2	0	0	0	0	0	3

E.2.1.2 German monolingual sample

Child ID	Sample	Age group	all_NP_new	defNP_new	indefNP_new	bareN_new	DEM_new	PRO_new	0PRO_new	all_ref_exp_new
21	md	4	6	5	1	0	0	0	0	6
22	md	4	4	1	2	1	0	0	0	4
26	md	4	5	1	4	0	0	0	0	5
48	md	4	2	2	0	0	0	0	0	2
52	md	4	2	2	0	0	1	0	0	3
64	md	4	5	3	2	0	0	0	0	5
65	md	4	4	3	1	0	0	0	0	4
93	md	4	3	2	1	0	0	0	0	3
110	md	4	3	3	0	0	2	0	0	5
119	md	4	3	0	1	2	0	0	0	3
125	md	4	3	2	1	0	0	0	0	3
147	md	4	3	3	0	0	0	0	0	3
35	md	5	4	4	0	0	1	0	0	5
115	md	5	5	4	1	0	0	0	0	5
127	md	5	3	3	0	0	0	0	0	3
159	md	5	4	3	1	0	0	0	0	4
160	md	5	3	3	0	0	0	0	0	3
161new	md	5	5	3	1	1	1	0	0	6
166new	md	5	3	2	1	0	0	0	0	3
167new	md	5	3	3	0	0	0	0	0	3
171	md	5	5	4	0	1	0	0	0	5
186	md	5	3	3	0	0	0	0	0	3
195	md	5	3	2	1	0	0	0	0	3
34	md	6	4	2	2	0	0	0	0	4
63	md	6	3	1	2	0	0	0	0	3
158new	md	6	6	4	2	0	0	0	0	6
159new	md	6	5	3	2	0	0	0	0	5
163new	md	6	5	3	2	0	1	0	0	6
164new	md	6	3	3	0	0	1	0	0	4
168new	md	6	2	1	1	0	0	1	0	3
170new	md	6	5	3	2	0	0	0	0	5
171new	md	6	3	3	0	0	0	0	0	3
173new	md	6	3	0	3	0	0	0	0	3

E.2.1.3 Russian-German bilingual sample (data in Russian)

Child ID	Sample	Age group	all_bareN_new	preVbareN_new	postVbareN_ne	0VbareN_new	VfinbareN_new	demNP_new	PRO_new	0PRO_new	all_ref_exp_new
11	br	4	5	2	1	0	2	0	1	0	6
13	br	4	5	3	2	0	0	0	0	1	6
17	br	4	2	2	0	0	0	0	1	0	3
22	br	4	2	2	0	0	0	1	0	0	3
37	br	4	2	1	0	1	0	0	1	0	3
41	br	4	3	2	0	1	0	0	0	0	3
58	br	4	4	3	0	1	0	0	1	0	5
59	br	4	4	3	0	1	0	0	0	0	4
63	br	4	3	3	0	0	0	1	0	0	4
64	br	4	4	3	0	0	1	0	1	1	6
66	br	4	3	2	1	0	0	0	0	0	3
67	br	4	2	1	0	1	0	0	0	0	2
70	br	4	1	0	1	0	0	1	0	0	2
72	br	4	4	2	0	1	1	0	0	0	4
73	br	4	4	1	2	1	0	0	0	0	4
75	br	4	4	3	1	0	0	0	0	0	4
80	br	4	5	2	1	2	0	0	0	0	5
89	br	4	3	2	0	1	0	0	0	0	3
90	br	4	2	0	0	2	0	0	0	0	2
91	br	4	1	1	0	0	0	0	2	0	3
3	br	5	3	2	1	0	0	0	0	0	3
4	br	5	4	1	3	0	0	0	0	0	4
5	br	5	3	2	1	0	0	0	0	0	3
16	br	5	2	0	2	0	0	1	0	0	3
18	br	5	1	0	0	1	0	0	0	0	1
23	br	5	2	1	0	1	0	1	0	0	3
24	br	5	2	1	0	1	0	0	0	0	2
38	br	5	2	2	0	0	0	0	1	0	3
39	br	5	5	1	4	0	0	0	0	0	5
40	br	5	4	2	2	0	0	0	0	0	4
46	br	5	2	1	1	0	0	0	1	0	3
50	br	5	4	0	0	4	0	0	0	0	4
51	br	5	1	0	1	0	0	0	2	0	3
53	br	5	4	3	1	0	0	0	0	0	4
54	br	5	4	1	2	1	0	1	1	0	6
71	br	5	4	2	2	0	0	0	0	0	4
86	br	5	2	1	1	0	0	1	0	0	3
101	br	5	4	3	1	0	0	0	0	0	4
102	br	5	5	1	3	0	1	0	1	0	6
103	br	5	3	1	2	0	0	0	1	0	4
28	br	6	4	3	0	1	0	0	0	1	5
29	br	6	4	2	1	1	0	0	0	0	4
32	br	6	3	1	2	0	0	0	0	0	3
33	br	6	2	0	2	0	0	0	1	0	3
34	br	6	4	3	1	0	0	0	0	0	4
35	br	6	3	0	3	0	0	0	0	0	3
36	br	6	3	0	2	1	0	0	0	0	3
43	br	6	3	2	1	0	0	0	0	0	3
44	br	6	2	1	1	0	0	0	1	0	3
47	br	6	3	1	2	0	0	0	0	0	3
52	br	6	3	2	1	0	0	1	0	0	4
57	br	6	5	0	2	3	0	0	2	0	7
77	br	6	6	5	0	0	1	0	0	1	7
78	br	6	3	2	0	1	0	0	0	0	3
83	br	6	3	1	2	0	0	0	0	0	3
97	br	6	4	3	1	0	0	1	0	0	5
98	br	6	3	2	1	0	0	0	0	0	3
99	br	6	2	1	1	0	0	0	1	0	3
112	br	6	3	2	1	0	0	0	0	0	3
113	br	6	3	2	1	0	0	0	0	0	3

E.2.1.4 Russian-German bilingual sample (data in German)

Child ID	Sample	Age group	all_NP_new	defNP_new	indefNP_new	bareN_new	DEM_new	PRO_new	0PRO_new	all_ref_exp_new
11	bd	4	1	1	0	0	2	0	0	3
13	bd	4	2	1	1	0	0	1	0	3
17	bd	4	5	3	1	1	0	2	0	7
22	bd	4	3	3	0	0	0	0	0	3
37	bd	4	6	3	3	0	0	0	0	6
41	bd	4	3	1	2	0	1	0	0	4
58	bd	4	2	1	1	0	0	1	0	3
59	bd	4	2	0	0	2	1	0	0	3
63	bd	4	3	3	0	0	0	0	0	3
64	bd	4	3	2	1	0	0	0	0	3
66	bd	4	4	4	0	0	0	0	0	4
67	bd	4	2	1	1	0	2	0	0	4
70	bd	4	4	2	1	1	0	0	0	4
72	bd	4	3	0	1	2	0	0	0	3
73	bd	4	3	2	0	1	1	0	0	4
75	bd	4	3	1	2	0	0	0	0	3
80	bd	4	3	2	1	0	0	0	0	3
89	bd	4	5	2	2	1	1	0	0	6
90	bd	4	3	1	2	0	1	0	0	4
91	bd	4	2	1	1	0	1	0	0	3
3	bd	5	4	2	2	0	0	0	1	5
4	bd	5	5	2	3	0	0	0	0	5
5	bd	5	4	4	0	0	0	0	0	4
16	bd	5	3	3	0	0	0	0	0	3
18	bd	5	4	1	3	0	0	0	0	4
23	bd	5	3	2	1	0	0	0	0	3
24	bd	5	2	1	1	0	0	0	0	2
38	bd	5	2	1	1	0	0	0	1	3
39	bd	5	3	0	3	0	0	0	0	3
40	bd	5	3	0	3	0	0	0	0	3
46	bd	5	5	2	3	0	0	0	0	5
50	bd	5	3	2	1	0	0	0	0	3
51	bd	5	2	2	0	0	0	1	0	3
53	bd	5	3	1	2	0	0	0	0	3
54	bd	5	3	2	1	0	0	0	0	3
71	bd	5	3	1	2	0	0	0	0	3
86	bd	5	4	3	1	0	1	0	0	5
101	bd	5	3	0	3	0	0	0	0	3
102	bd	5	3	0	3	0	0	0	0	3
103	bd	5	3	3	0	0	0	0	0	3
28	bd	6	3	1	2	0	0	0	0	3
29	bd	6	3	0	3	0	0	0	0	3
32	bd	6	4	2	2	0	0	0	0	4
33	bd	6	6	3	3	0	0	0	0	6
34	bd	6	3	1	2	0	0	0	0	3
35	bd	6	4	1	3	0	0	0	0	4
36	bd	6	4	0	4	0	0	0	0	4
43	bd	6	4	2	2	0	0	0	0	4
44	bd	6	4	4	0	0	0	1	0	5
47	bd	6	5	2	3	0	0	0	0	5
52	bd	6	2	2	0	0	0	0	0	2
57	bd	6	2	0	2	0	1	0	0	3
77	bd	6	2	1	0	1	0	0	1	3
78	bd	6	3	2	1	0	0	0	0	3
83	bd	6	4	3	1	0	0	0	0	4
97	bd	6	3	1	2	0	0	0	0	3
98	bd	6	5	2	3	0	0	0	0	5
99	bd	6	5	2	3	0	0	0	0	5
112	bd	6	4	1	3	0	0	0	0	4
113	bd	6	4	1	3	0	0	0	0	4

E.2.2 Distribution of referential expressions with information status GIVEN

E.2.2.1 Russian monolingual sample

Child ID	Sample	Age group	all_bareN_giv	preVbareN_giv	postVbareN_giv	0VbareN_giv	VfinbareN_giv	demNP_giv	PRO_giv	0PRO_giv	all_ref_exp_giv
6	mr	4	9	6	3	0	0	0	4	2	15
17	mr	4	16	9	7	0	0	0	1	1	18
32	mr	4	3	2	1	0	0	0	2	0	5
33	mr	4	2	1	1	0	0	0	7	4	13
81	mr	4	5	2	2	0	1	1	3	1	10
83	mr	4	8	4	4	0	0	0	1	3	12
86	mr	4	3	1	2	0	0	0	2	0	5
87	mr	4	5	4	1	0	0	0	2	4	11
89	mr	4	4	4	0	0	0	0	0	0	4
131	mr	4	7	3	4	0	0	0	3	1	11
169	mr	4	7	2	3	1	1	0	0	1	8
176	mr	4	4	1	3	0	0	0	4	2	10
30	mr	5	2	2	0	0	0	0	8	2	12
49	mr	5	5	5	0	0	0	0	3	3	11
50	mr	5	1	1	0	0	0	0	6	4	11
51	mr	5	0	0	0	0	0	0	7	4	11
65	mr	5	3	3	0	0	0	0	7	8	18
67	mr	5	4	3	1	0	0	0	8	8	20
71	mr	5	1	1	0	0	0	0	5	2	8
92	mr	5	11	6	5	0	0	0	6	8	25
98	mr	5	1	0	1	0	0	0	10	13	24
109	mr	5	4	3	0	0	1	0	2	1	7
129	mr	5	5	2	3	0	0	0	1	2	8
133	mr	5	11	3	8	0	0	0	0	2	13
48	mr	6	5	2	3	0	0	0	4	7	16
59new	mr	6	0	0	0	0	0	0	2	2	4
64new	mr	6	2	1	1	0	0	0	14	12	28
65new	mr	6	7	4	3	0	0	0	0	3	10
66new	mr	6	4	2	0	0	2	0	3	8	15
67new	mr	6	6	2	1	1	2	0	11	9	26
68	mr	6	6	3	3	0	0	0	2	2	10
68new	mr	6	6	2	2	2	0	0	7	7	20
69	mr	6	1	1	0	0	0	0	4	15	20
69new	mr	6	6	3	3	0	0	0	9	5	20
70new	mr	6	7	5	2	0	0	1	2	8	18

E.2.2.2 German monolingual sample

Child ID	Sample	Age group	all_NP_giv	defNP_giv	indefNP_giv	bareN_giv	DEM_giv	PRO_giv	0PRO_giv	all_ref_exp_giv
21	md	4	1	1	0	0	0	2	2	5
22	md	4	0	0	0	0	1	0	0	1
26	md	4	3	3	0	0	0	0	0	3
48	md	4	1	1	0	0	0	2	1	4
52	md	4	3	3	0	0	2	4	0	9
64	md	4	5	5	0	0	2	0	0	7
65	md	4	2	2	0	0	1	0	2	5
93	md	4	9	9	0	0	0	8	4	21
110	md	4	3	3	0	0	1	0	1	5
119	md	4	3	3	0	0	6	0	0	9
125	md	4	6	6	0	0	0	2	2	10
147	md	4	8	8	0	0	0	0	0	8
35	md	5	3	3	0	0	1	0	0	4
115	md	5	4	4	0	0	0	0	3	7
127	md	5	3	3	0	0	3	1	1	8
159	md	5	1	1	0	0	2	0	1	4
160	md	5	3	3	0	0	0	1	0	4
161new	md	5	3	3	0	0	7	0	4	14
166new	md	5	4	4	0	0	2	4	0	10
167new	md	5	3	3	0	0	1	6	0	10
171	md	5	2	2	0	0	1	0	2	5
186	md	5	2	2	0	0	7	6	0	15
195	md	5	0	0	0	0	3	5	0	8
34	md	6	3	3	0	0	2	2	1	8
63	md	6	2	2	0	0	4	1	1	8
158new	md	6	0	0	0	0	1	2	1	4
159new	md	6	4	4	0	0	1	0	1	6
163new	md	6	6	6	0	0	1	0	1	8
164new	md	6	4	4	0	0	2	3	0	9
168new	md	6	1	1	0	0	4	8	5	18
170new	md	6	4	4	0	0	4	0	0	8
171new	md	6	9	9	0	0	0	1	1	11
173new	md	6	7	7	0	0	0	1	1	9

E.2.2.3 Russian-German bilingual sample (data in Russian)

Child ID	Sample	Age group	all_bareN_giv	preVbareN_giv	postVbareN_giv	0VbareN_giv	VfinbareN_giv	demNP_giv	PRO_giv	0PRO_giv	all_ref_exp_giv
11	br	4	2	1	1	0	0	0	4	3	9
13	br	4	1	0	0	1	0	0	3	8	12
17	br	4	1	1	0	0	0	3	2	6	12
22	br	4	1	0	1	0	0	3	14	2	20
37	br	4	4	0	1	3	0	0	2	0	6
41	br	4	4	2	2	0	0	2	5	6	17
58	br	4	9	7	1	1	0	0	10	4	23
59	br	4	3	2	0	0	1	0	9	2	14
63	br	4	5	3	1	0	1	0	9	4	18
64	br	4	3	1	2	0	0	0	4	2	9
66	br	4	2	2	0	0	0	1	2	6	11
67	br	4	1	1	0	0	0	0	6	2	9
70	br	4	6	5	1	0	0	0	0	0	6
72	br	4	4	4	0	0	0	0	6	2	12
73	br	4	2	1	0	1	0	0	6	2	10
75	br	4	0	0	0	0	0	0	3	3	6
80	br	4	2	1	1	0	0	0	0	0	2
89	br	4	0	0	0	0	0	0	4	2	6
90	br	4	8	0	1	7	0	0	0	0	8
91	br	4	1	1	0	0	0	0	5	2	8
3	br	5	4	3	1	0	0	1	2	3	10
4	br	5	12	5	6	0	1	0	5	0	17
5	br	5	4	3	0	0	1	0	8	6	18
16	br	5	3	3	0	0	0	2	6	3	14
18	br	5	4	0	3	1	0	0	7	4	15
23	br	5	2	1	0	1	0	1	4	1	8
24	br	5	5	2	1	1	1	0	4	3	12
38	br	5	1	0	0	0	1	0	6	1	8
39	br	5	9	2	7	0	0	0	1	6	16
40	br	5	7	4	2	1	0	0	0	0	7
46	br	5	6	4	2	0	0	0	7	0	13
50	br	5	5	4	0	1	0	0	0	1	6
51	br	5	0	0	0	0	0	0	7	2	9
53	br	5	3	1	1	0	1	0	3	4	10
54	br	5	2	0	1	1	0	0	13	3	18
71	br	5	2	2	0	0	0	0	5	1	8
86	br	5	2	0	2	0	0	5	2	3	12
101	br	5	8	8	0	0	0	0	4	3	15
102	br	5	3	2	1	0	0	0	2	2	7
103	br	5	9	7	2	0	0	1	3	1	14
28	br	6	5	3	0	2	0	0	8	7	20
29	br	6	4	3	1	0	0	0	1	5	10
32	br	6	6	4	2	0	0	6	1	2	15
33	br	6	7	2	4	1	0	0	3	7	17
34	br	6	4	2	2	0	0	0	2	0	6
35	br	6	4	2	1	1	0	0	0	6	10
36	br	6	6	3	3	0	0	0	5	4	15
43	br	6	3	1	0	2	0	0	1	5	9
44	br	6	7	5	2	0	0	1	10	0	18
47	br	6	2	1	1	0	0	0	7	8	17
52	br	6	4	1	2	1	0	1	6	3	14
57	br	6	2	1	0	1	0	1	5	2	10
77	br	6	0	0	0	0	0	0	0	1	1
78	br	6	4	3	1	0	0	1	1	3	9
83	br	6	2	2	0	0	0	0	6	5	13
97	br	6	2	1	1	0	0	1	3	1	7
98	br	6	4	4	0	0	0	0	4	4	12
99	br	6	2	0	1	0	1	0	7	6	15
112	br	6	4	0	4	0	0	0	2	13	19
113	br	6	6	3	3	0	0	0	4	10	20

E.2.2.4 Russian-German bilingual sample (data in German)

Child ID	Sample	Age group	all_NP_giv	defNP_giv	indefNP_giv	bareN_giv	DEM_giv	PRO_giv	0PRO_giv	all_ref_exp_giv
11	bd	4	1	1	0	0	10	0	1	12
13	bd	4	0	0	0	0	1	7	0	8
17	bd	4	2	2	0	0	2	2	1	7
22	bd	4	2	2	0	0	3	2	2	9
37	bd	4	4	2	0	2	4	0	2	10
41	bd	4	0	0	0	0	2	3	2	7
58	bd	4	2	2	0	0	1	4	1	8
59	bd	4	5	2	0	3	18	5	2	30
63	bd	4	3	3	0	0	0	5	1	9
64	bd	4	2	1	0	1	4	0	1	7
66	bd	4	4	4	0	0	4	1	1	10
67	bd	4	0	0	0	0	1	4	1	6
70	bd	4	6	6	0	0	0	0	2	8
72	bd	4	6	6	0	0	1	9	4	20
73	bd	4	0	0	0	0	10	1	4	15
75	bd	4	3	3	0	0	1	10	7	21
80	bd	4	10	10	0	0	1	1	0	12
89	bd	4	2	2	0	0	0	0	2	4
90	bd	4	0	0	0	0	6	1	0	7
91	bd	4	0	0	0	0	10	8	2	20
3	bd	5	4	4	0	0	3	1	2	10
4	bd	5	3	3	0	0	0	3	0	6
5	bd	5	2	2	0	0	4	4	1	11
16	bd	5	4	4	0	0	0	4	1	9
18	bd	5	5	4	1	0	2	2	2	11
23	bd	5	2	2	0	0	0	3	0	5
24	bd	5	1	0	1	0	1	4	2	8
38	bd	5	0	0	0	0	2	2	1	5
39	bd	5	4	3	1	0	2	8	2	16
40	bd	5	5	5	0	0	1	1	13	20
46	bd	5	5	5	0	0	0	5	1	11
50	bd	5	0	0	0	0	3	4	0	7
51	bd	5	1	1	0	0	0	5	2	8
53	bd	5	0	0	0	0	1	3	0	4
54	bd	5	6	5	0	1	2	10	1	19
71	bd	5	5	5	0	0	0	8	3	16
86	bd	5	2	2	0	0	1	0	0	3
101	bd	5	4	4	0	0	5	6	5	20
102	bd	5	7	7	0	0	1	6	5	19
103	bd	5	3	2	0	1	2	2	5	12
28	bd	6	4	4	0	0	3	6	4	17
29	bd	6	3	3	0	0	4	2	2	11
32	bd	6	3	2	0	1	1	3	0	7
33	bd	6	3	3	0	0	1	0	3	7
34	bd	6	8	8	0	0	1	3	4	16
35	bd	6	14	13	1	0	0	4	1	19
36	bd	6	6	5	1	0	2	1	1	10
43	bd	6	0	0	0	0	3	0	0	3
44	bd	6	5	5	0	0	2	2	0	9
47	bd	6	1	1	0	0	0	2	2	5
52	bd	6	4	2	1	1	0	8	4	16
57	bd	6	4	3	1	0	5	4	2	15
77	bd	6	5	5	0	0	3	1	3	12
78	bd	6	7	7	0	0	1	8	2	18
83	bd	6	2	2	0	0	1	1	1	5
97	bd	6	6	6	0	0	2	2	1	11
98	bd	6	1	1	0	0	3	5	0	9
99	bd	6	2	2	0	0	0	5	4	11
112	bd	6	6	6	0	0	0	0	1	7
113	bd	6	2	2	0	0	0	0	0	2

E.2.3 Distribution of referential expressions with information status ACCESSIBLE

E.2.3.1 Russian monolingual sample

Child ID	Sample	Age group	all_bareN_acc	preVbareN_acc	postVbareN_ac	0VbareN_acc	VfinbareN_acc	demNP_acc	PRO_acc	0PRO_acc	all_ref_exp_acc
6	mr	4	5	2	2	1	0	0	0	0	5
17	mr	4	4	0	3	1	0	0	0	0	4
32	mr	4	6	5	1	0	0	0	1	0	7
33	mr	4	6	4	2	0	0	0	2	0	8
81	mr	4	5	2	0	2	1	0	0	0	5
83	mr	4	5	3	2	0	0	0	0	0	5
86	mr	4	4	3	0	1	0	0	0	0	4
87	mr	4	0	0	0	0	0	0	1	0	1
89	mr	4	4	3	0	1	0	0	1	0	5
131	mr	4	3	2	1	0	0	0	0	0	3
169	mr	4	7	2	5	0	0	0	1	0	8
176	mr	4	2	1	1	0	0	0	2	0	4
30	mr	5	9	7	1	0	1	0	5	1	15
49	mr	5	7	4	3	0	0	0	1	0	8
50	mr	5	2	1	1	0	0	0	2	1	5
51	mr	5	4	3	0	0	1	0	2	0	6
65	mr	5	8	3	4	0	1	0	2	1	11
67	mr	5	7	3	3	0	1	0	1	0	8
71	mr	5	8	5	3	0	0	0	0	0	8
92	mr	5	8	4	3	1	0	0	0	0	8
98	mr	5	4	2	1	1	0	0	0	0	4
109	mr	5	6	2	3	1	0	0	0	0	6
129	mr	5	8	5	2	1	0	0	0	0	8
133	mr	5	0	0	0	0	0	0	0	0	0
48	mr	6	8	5	3	0	0	0	2	0	10
59new	mr	6	5	3	2	0	0	0	1	0	6
64new	mr	6	12	8	4	0	0	0	1	2	15
65new	mr	6	5	4	1	0	0	0	1	0	6
66new	mr	6	8	4	1	1	2	0	1	0	9
67new	mr	6	9	8	0	1	0	0	1	0	10
68	mr	6	9	3	4	1	1	0	1	1	11
68new	mr	6	5	3	1	0	1	1	3	4	13
69	mr	6	11	9	2	0	0	0	2	0	13
69new	mr	6	6	4	2	0	0	0	0	0	6
70new	mr	6	4	1	3	0	0	0	1	0	5

E.2.3.2 German monolingual sample

Child ID	Sample	Age group	all_NP_acc	defNP_acc	indefNP_acc	bareN_acc	DEM_acc	PRO_acc	0PRO_acc	all_ref_exp_acc
21	md	4	7	7	0	0	2	0	0	9
22	md	4	12	12	0	0	0	0	0	12
26	md	4	6	5	1	0	1	0	0	7
48	md	4	6	5	1	0	2	1	0	9
52	md	4	1	1	0	0	2	1	0	4
64	md	4	6	6	0	0	1	0	0	7
65	md	4	7	7	0	0	3	0	0	10
93	md	4	12	12	0	0	0	1	0	13
110	md	4	3	3	0	0	0	0	0	3
119	md	4	6	2	1	3	3	0	0	9
125	md	4	9	8	1	0	0	0	0	9
147	md	4	4	4	0	0	0	0	0	4
35	md	5	6	6	0	0	1	1	0	8
115	md	5	4	4	0	0	3	1	0	8
127	md	5	3	2	0	1	0	1	1	5
159	md	5	7	7	0	0	0	0	1	8
160	md	5	8	8	0	0	0	0	0	8
161new	md	5	3	3	0	0	4	0	0	7
166new	md	5	7	7	0	0	2	1	0	10
167new	md	5	4	4	0	0	2	1	0	7
171	md	5	9	8	0	1	0	0	0	9
186	md	5	4	4	0	0	0	3	0	7
195	md	5	6	6	0	0	0	2	0	8
34	md	6	3	3	0	0	1	0	0	4
63	md	6	3	3	0	0	1	0	0	4
158new	md	6	11	10	1	0	2	1	0	14
159new	md	6	4	4	0	0	0	1	0	5
163new	md	6	7	7	0	0	1	0	0	8
164new	md	6	2	2	0	0	1	0	0	3
168new	md	6	3	3	0	0	5	5	0	13
170new	md	6	10	10	0	0	1	0	0	11
171new	md	6	3	3	0	0	0	1	0	4
173new	md	6	6	6	0	0	1	0	0	7

E.2.3.3 Russian-German bilingual sample (data in Russian)

Child ID	Sample	Age group	all_bareN_acc	preVbareN_acc	postVbareN_ac	0VbareN_acc	VfinbareN_acc	demNP_acc	PRO_acc	0PRO_acc	all_ref_exp_acc
11	br	4	6	3	3	0	0	3	2	0	11
13	br	4	3	0	1	1	1	1	0	0	4
17	br	4	3	1	1	0	1	0	3	0	6
22	br	4	2	2	0	0	0	4	2	0	8
37	br	4	9	5	0	4	0	0	2	0	11
41	br	4	1	1	0	0	0	3	5	0	9
58	br	4	2	1	0	1	0	0	0	1	3
59	br	4	8	6	1	1	0	0	8	0	16
63	br	4	0	0	0	0	0	0	5	1	6
64	br	4	0	0	0	0	0	0	1	0	1
66	br	4	4	3	0	0	1	0	2	2	8
67	br	4	1	1	0	0	0	0	0	1	2
70	br	4	3	2	1	0	0	0	0	0	3
72	br	4	5	5	0	0	0	0	4	0	9
73	br	4	10	8	2	0	0	0	4	1	15
75	br	4	3	3	0	0	0	0	3	2	8
80	br	4	7	4	3	0	0	0	1	0	8
89	br	4	2	2	0	0	0	0	3	0	5
90	br	4	2	0	0	2	0	0	0	0	2
91	br	4	0	0	0	0	0	1	7	0	8
3	br	5	5	4	1	0	0	3	2	0	10
4	br	5	5	3	1	1	0	0	0	2	7
5	br	5	3	1	1	0	1	0	1	1	5
16	br	5	1	1	0	0	0	3	1	0	5
18	br	5	7	4	3	0	0	0	1	1	9
23	br	5	8	3	1	2	2	1	2	0	11
24	br	5	7	5	0	2	0	0	0	2	9
38	br	5	1	1	0	0	0	0	2	0	3
39	br	5	7	3	4	0	0	0	0	0	7
40	br	5	4	3	1	0	0	0	0	0	4
46	br	5	3	3	0	0	0	0	0	1	4
50	br	5	2	1	0	1	0	0	3	0	5
51	br	5	0	0	0	0	0	0	2	0	2
53	br	5	2	2	0	0	0	0	1	0	3
54	br	5	3	3	0	0	0	0	11	0	14
71	br	5	9	7	1	1	0	0	2	0	11
86	br	5	1	0	1	0	0	7	0	0	8
101	br	5	6	4	2	0	0	1	0	1	8
102	br	5	6	5	1	0	0	0	0	0	6
103	br	5	7	6	1	0	0	0	0	1	8
28	br	6	12	7	3	2	0	0	1	1	14
29	br	6	5	2	2	1	0	0	3	0	8
32	br	6	4	4	0	0	0	2	0	0	6
33	br	6	6	4	2	0	0	0	1	0	7
34	br	6	2	2	0	0	0	1	2	0	5
35	br	6	9	5	3	1	0	0	0	0	9
36	br	6	12	5	6	1	0	0	0	0	12
43	br	6	3	2	1	0	0	1	1	1	6
44	br	6	1	0	1	0	0	0	1	0	2
47	br	6	3	1	1	1	0	0	5	1	9
52	br	6	8	3	0	5	0	1	0	0	9
57	br	6	4	2	1	0	1	0	7	0	11
77	br	6	9	9	0	0	0	0	2	0	11
78	br	6	5	5	0	0	0	3	2	0	10
83	br	6	5	1	2	1	1	0	2	1	8
97	br	6	9	3	4	1	1	0	1	0	10
98	br	6	3	1	1	1	0	0	1	0	4
99	br	6	4	1	2	0	1	0	2	2	8
112	br	6	7	5	2	0	0	0	0	0	7
113	br	6	5	3	1	0	1	0	0	0	5

E.2.3.4 Russian-German bilingual sample (data in German)

Child ID	Sample	Age group	all_NP_acc	defNP_acc	indefNP_acc	bareN_acc	DEM_acc	PRO_acc	0PRO_acc	all_ref_exp_acc
11	bd	4	2	2	0	0	5	0	0	7
13	bd	4	0	0	0	0	0	3	1	4
17	bd	4	3	2	1	0	1	0	1	5
22	bd	4	11	11	0	0	2	0	0	13
37	bd	4	7	5	1	1	0	0	0	7
41	bd	4	3	3	0	0	1	0	1	5
58	bd	4	2	2	0	0	3	2	0	7
59	bd	4	0	0	0	0	4	1	0	5
63	bd	4	9	9	0	0	0	3	0	12
64	bd	4	0	0	0	0	4	0	0	4
66	bd	4	3	3	0	0	0	0	0	3
67	bd	4	0	0	0	0	0	3	0	3
70	bd	4	4	4	0	0	0	0	0	4
72	bd	4	3	3	0	0	0	0	0	3
73	bd	4	0	0	0	0	7	0	1	8
75	bd	4	2	2	0	0	0	4	1	7
80	bd	4	6	6	0	0	0	0	0	6
89	bd	4	8	8	0	0	0	1	0	9
90	bd	4	3	2	1	0	1	0	0	4
91	bd	4	3	2	1	0	7	0	0	10
3	bd	5	12	12	0	0	0	0	0	12
4	bd	5	3	3	0	0	0	2	0	5
5	bd	5	3	3	0	0	0	1	0	4
16	bd	5	3	3	0	0	2	0	0	5
18	bd	5	3	3	0	0	0	1	0	4
23	bd	5	10	10	0	0	2	0	0	12
24	bd	5	5	4	1	0	0	1	0	6
38	bd	5	1	1	0	0	2	3	0	6
39	bd	5	3	3	0	0	0	0	0	3
40	bd	5	5	5	0	0	2	1	0	8
46	bd	5	3	3	0	0	0	0	0	3
50	bd	5	0	0	0	0	1	1	0	2
51	bd	5	2	2	0	0	0	0	0	2
53	bd	5	2	2	0	0	2	2	1	7
54	bd	5	7	7	0	0	2	1	0	10
71	bd	5	8	8	0	0	1	1	0	10
86	bd	5	5	5	0	0	1	0	0	6
101	bd	5	6	5	1	0	1	3	0	10
102	bd	5	6	6	0	0	1	1	0	8
103	bd	5	4	4	0	0	0	1	2	7
28	bd	6	10	9	1	0	2	0	0	12
29	bd	6	8	8	0	0	3	2	0	13
32	bd	6	11	11	0	0	1	0	0	12
33	bd	6	10	9	1	0	0	0	0	10
34	bd	6	13	13	0	0	1	0	0	14
35	bd	6	10	8	2	0	0	0	0	10
36	bd	6	9	8	1	0	0	1	0	10
43	bd	6	5	5	0	0	0	0	0	5
44	bd	6	0	0	0	0	0	0	0	0
47	bd	6	6	6	0	0	1	1	0	8
52	bd	6	3	2	0	1	1	0	0	4
57	bd	6	2	1	0	1	2	2	0	6
77	bd	6	1	1	0	0	0	1	1	3
78	bd	6	8	8	0	0	0	0	0	8
83	bd	6	14	14	0	0	0	0	0	14
97	bd	6	7	7	0	0	0	0	0	7
98	bd	6	6	6	0	0	0	2	0	8
99	bd	6	7	6	0	1	0	1	0	8
112	bd	6	6	6	0	0	0	0	0	6
113	bd	6	6	6	0	0	0	0	0	6